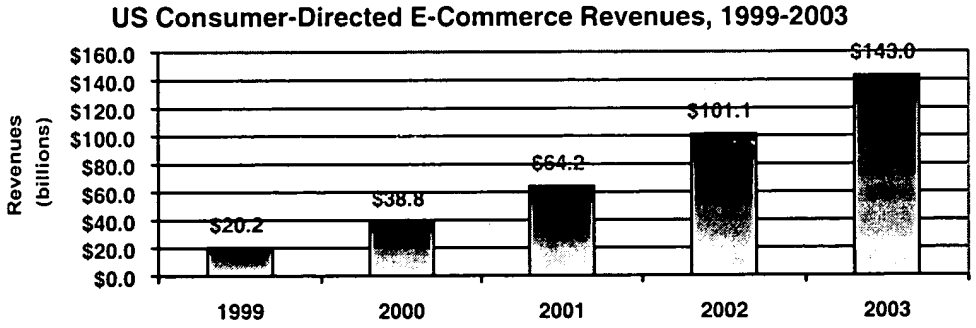
US Consumer-Directed E-Commerce Revenues, 1999-2003
Revenues (billions)
$160.0
$140.0
$120.0
$100.0
$80.0
$60.0
$40.0
$20.0
$0.0
$20.2
$38.8
$64.2
$101.1
$143.0
1999
2000
2001
2002
2003

Fig. 1

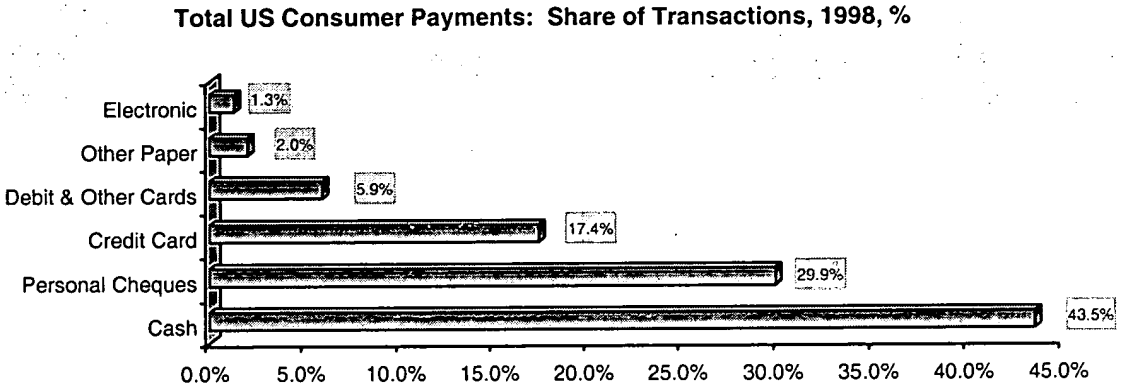
Total US Consumer Payments: Share of Transactions, 1998, %
Electronic
Other Paper
Debit & Other Cards
Credit Card
Personal Cheques
Cash
1.3%
2.0%
5.9%
17.4%
29.9%
43.5%
0.0%
5.0%
10.0%
15.0%
20.0%
25.0%
30.0%
35.0%
40.0%
45.0%

Fig. 2

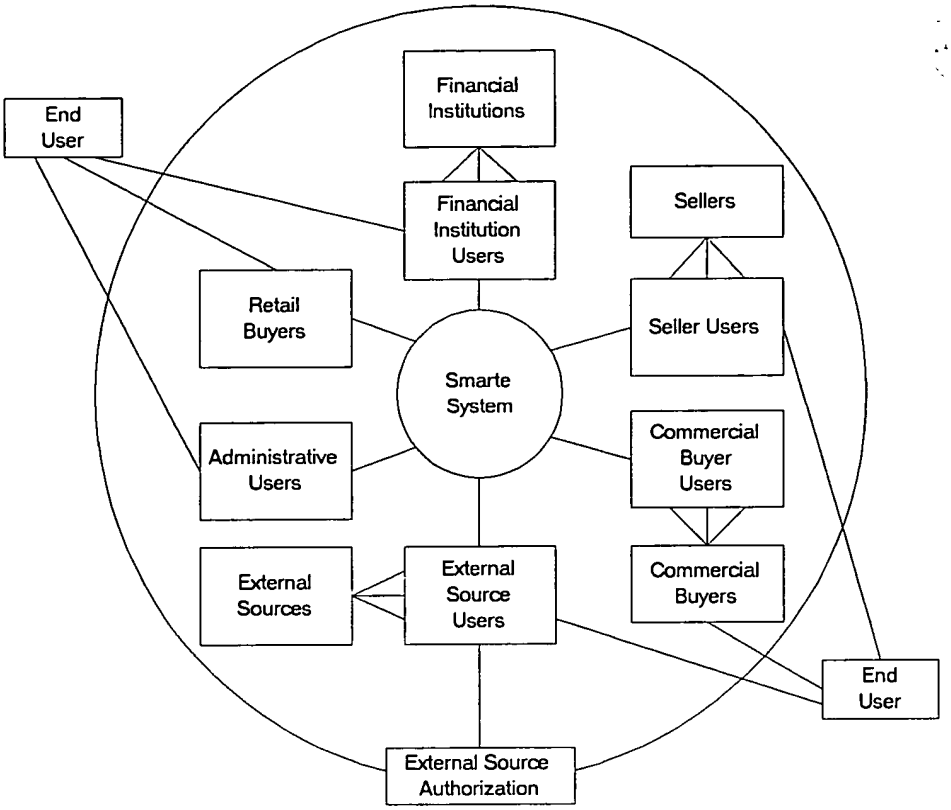
End User
Financial Institutions
Financial Institution Users
Sellers
Retail Buyers
Seller Users
Smarte System
Administrative Users
Commercial Buyer Users
External Sources
External Source Users
Commercial Buyers
End User
External Source Authorization

Fig. 3

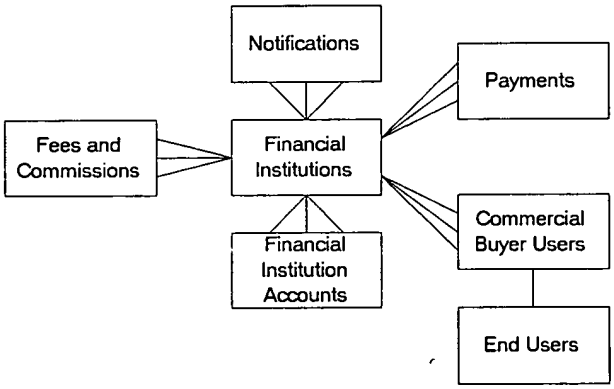
Notifications
Payments
Fees and Commissions
Financial Institutions
Commercial Buyer Users
Financial Institution Accounts
End Users

Fig. 4

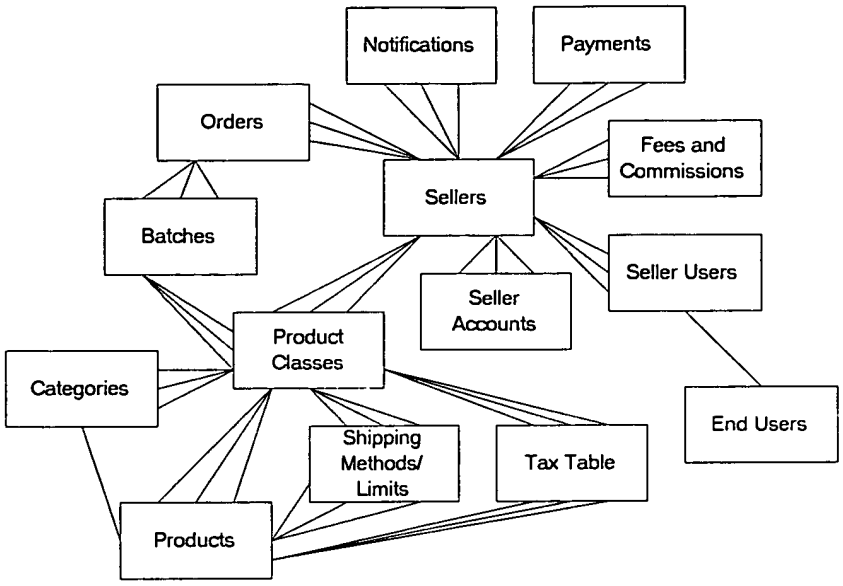
Notifications
Payments
Orders
Fees and Commissions
Sellers
Batches
Seller Users
Seller Accounts
Product Classes
Categories
End Users
Shipping Methods/ Limits
Tax Table
Products

Fig. 5

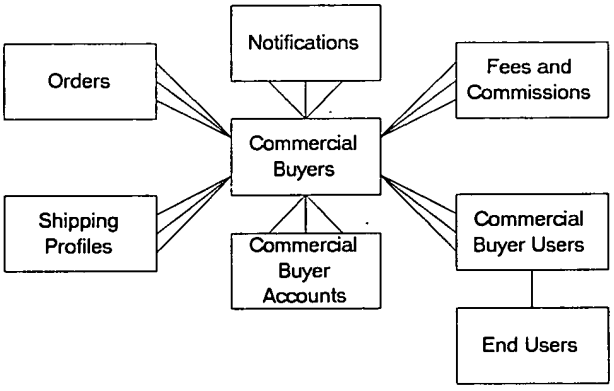
Notifications
Orders
Fees and Commissions
Commercial Buyers
Shipping Profiles
Commercial Buyer Users
Commercial Buyer Accounts
End Users

Fig. 6

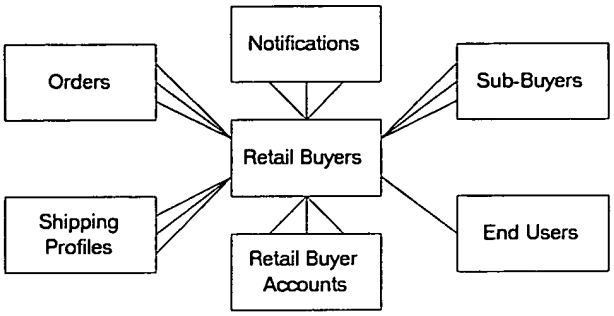

Fig. 7

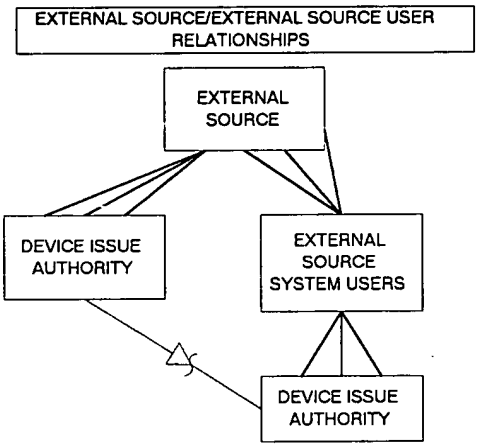

Fig. 8

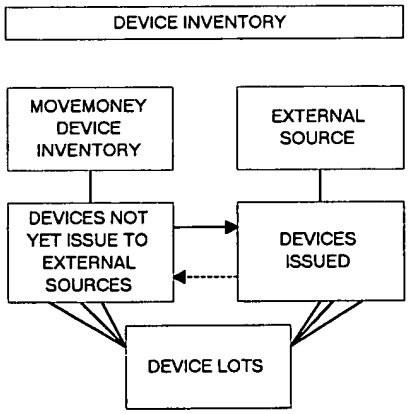

Fig. 9

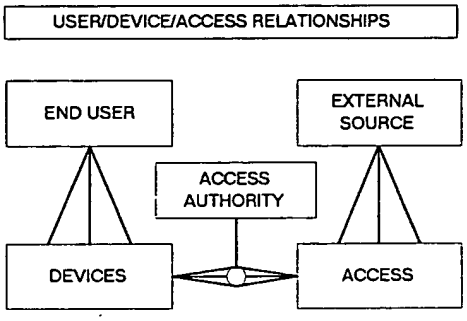

Fig. 10

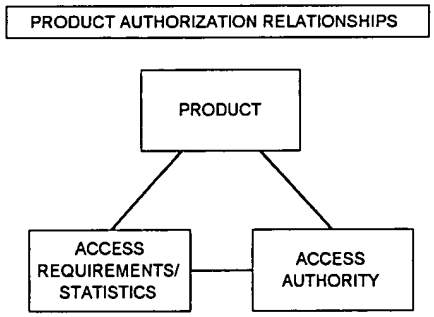

Fig. 11

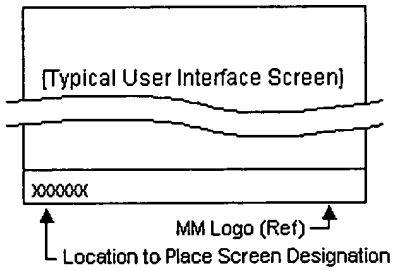

Fig. 12

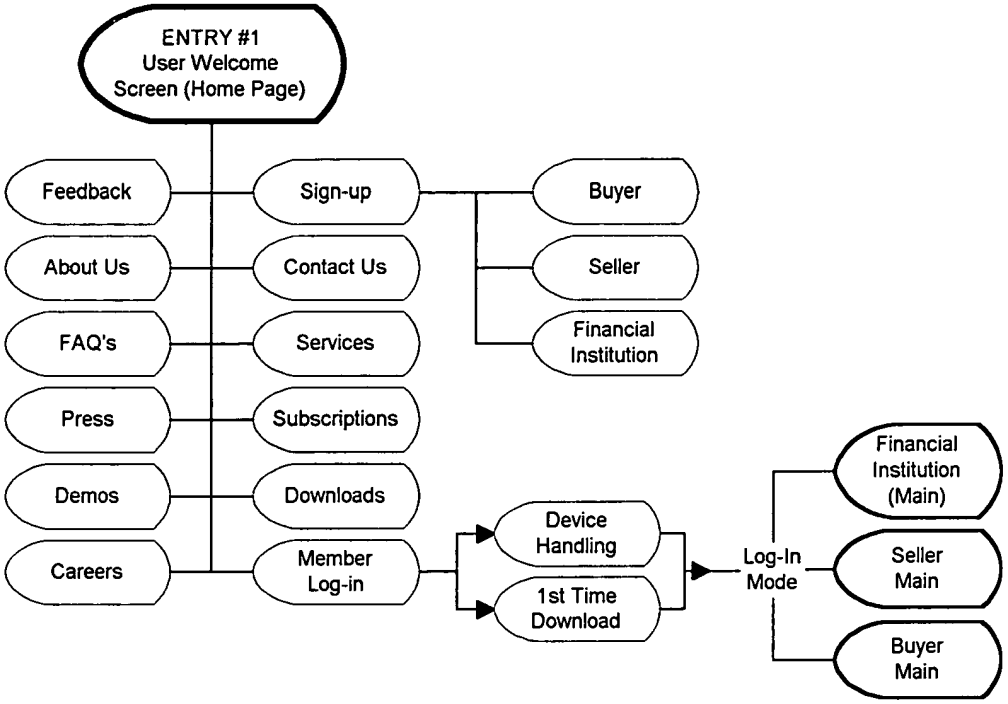

Fig. 13
Main/Home Screen

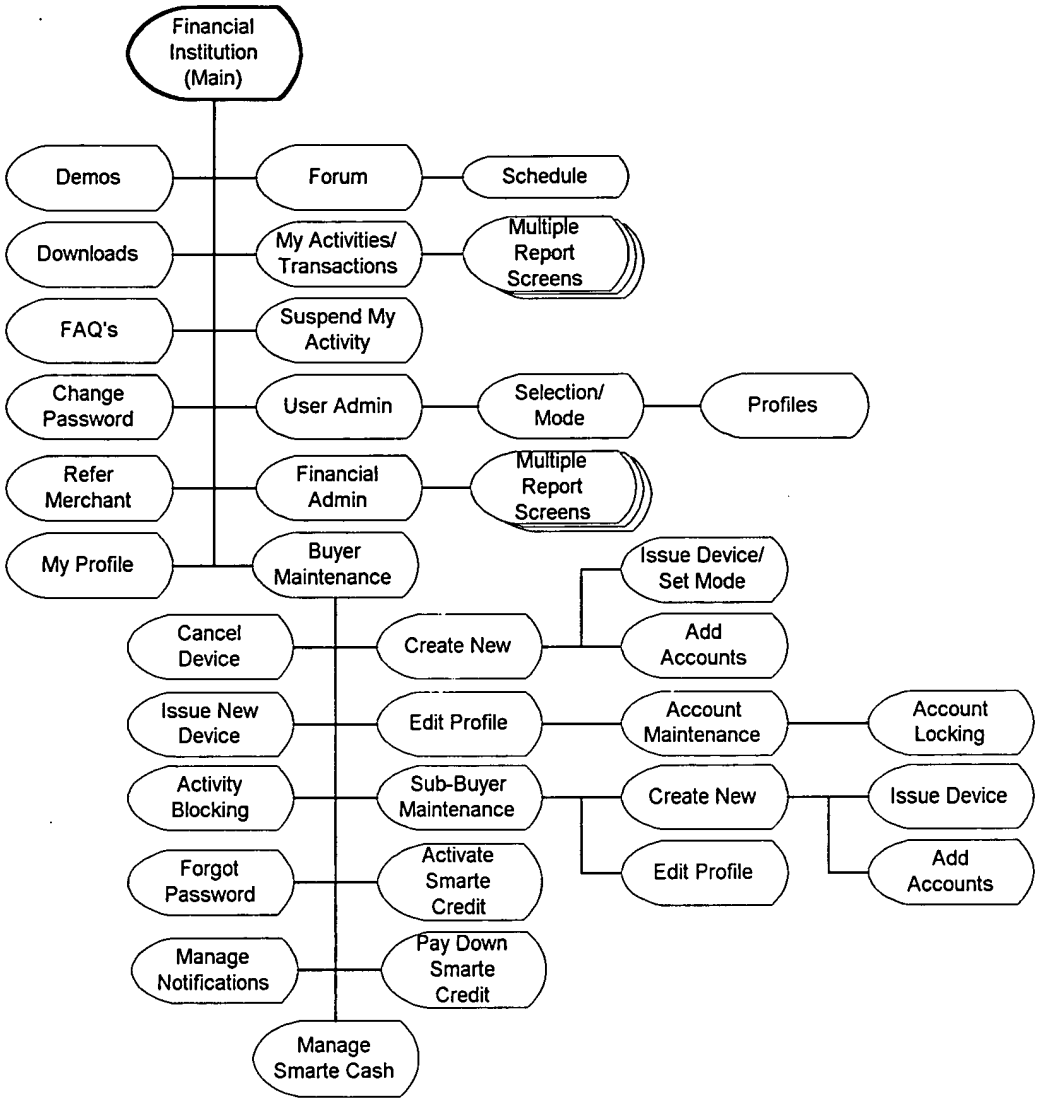

Fig. 14
Financial Institution Main Screen

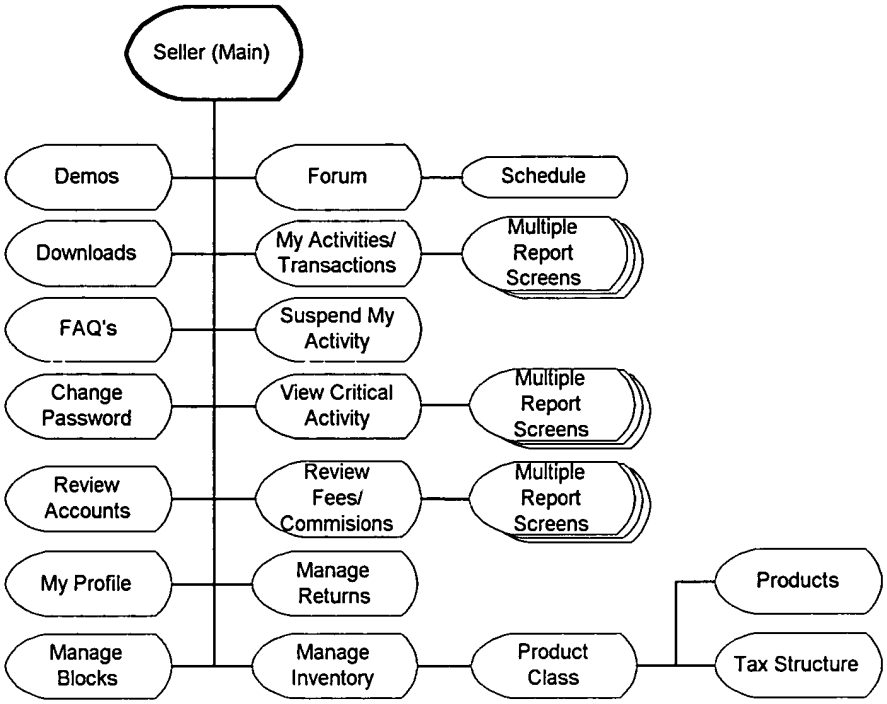

Fig. 15
Seller Main Screen

Docket No. 21204-0052

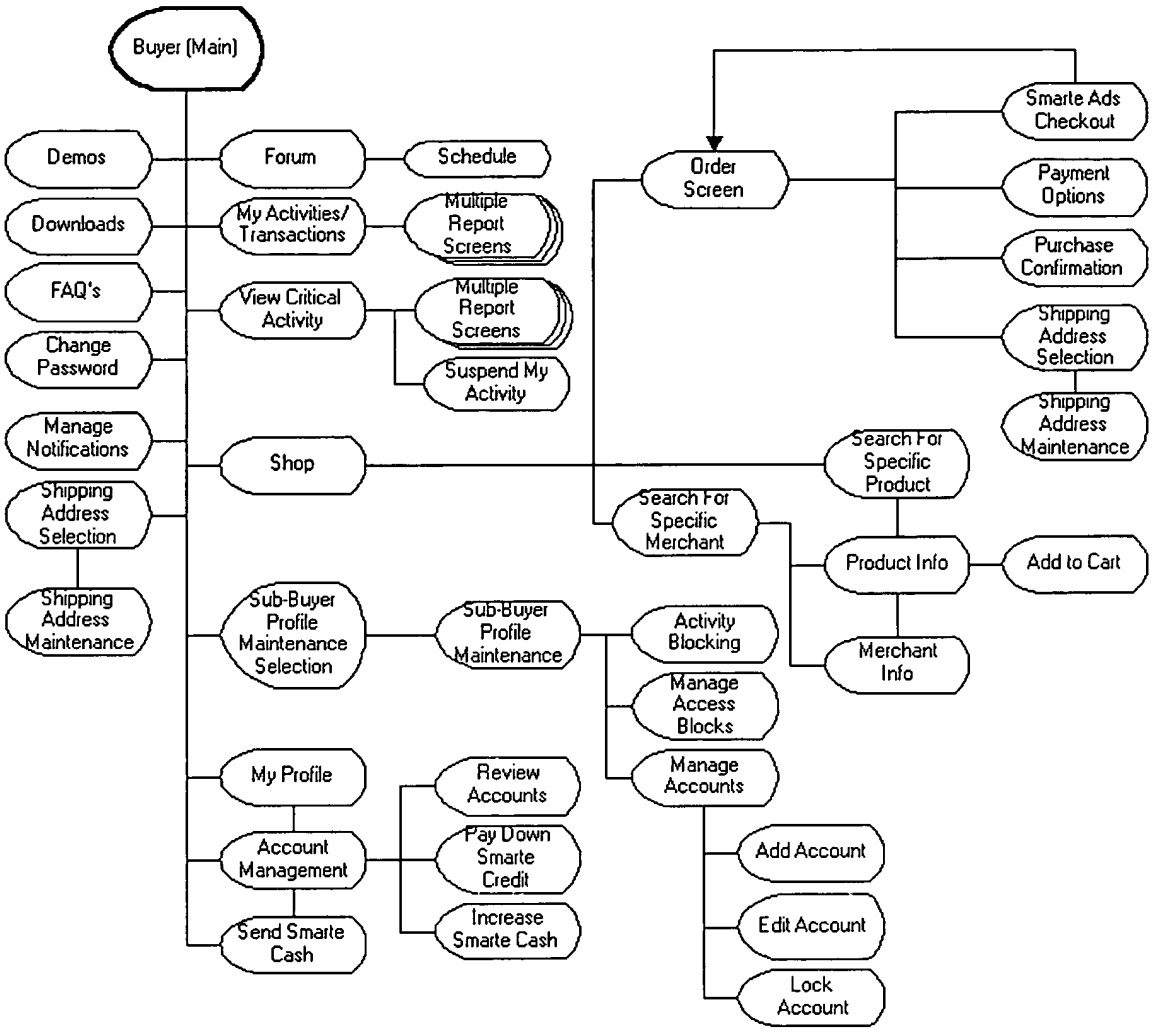

Fig. 16
Buyer Main Screen

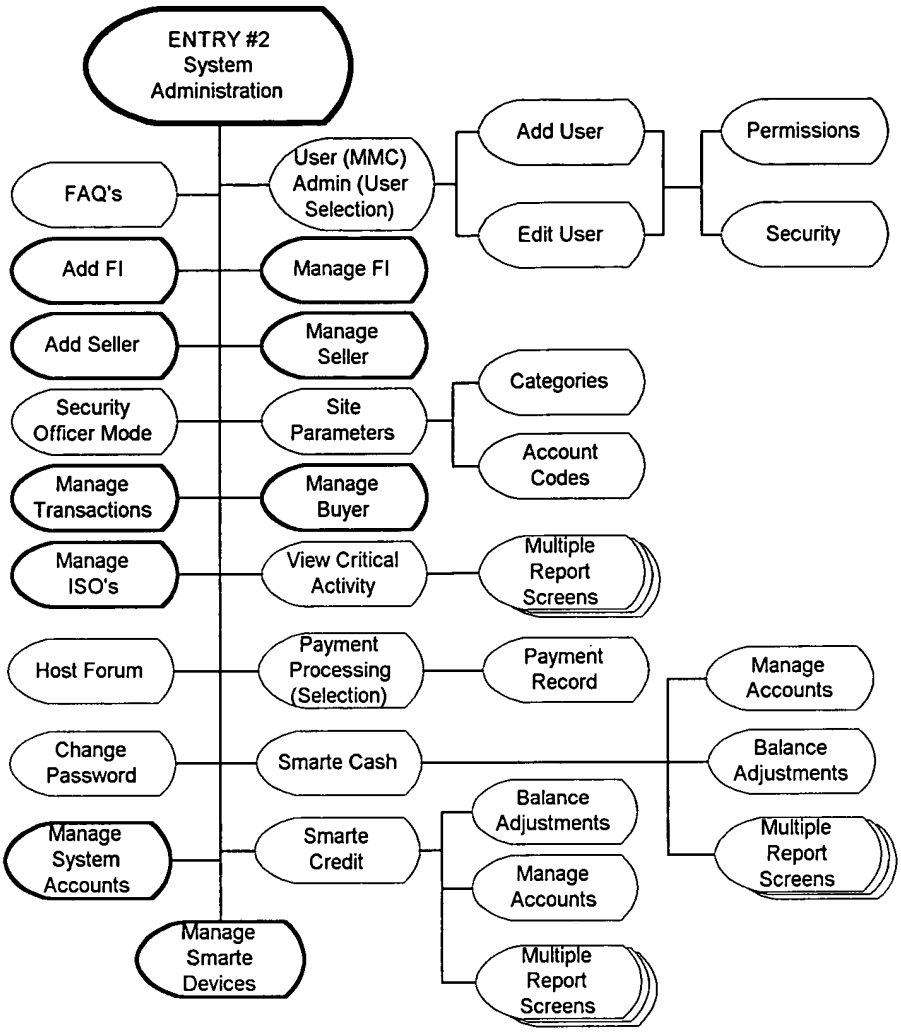

Fig. 17
Administration Main Screens

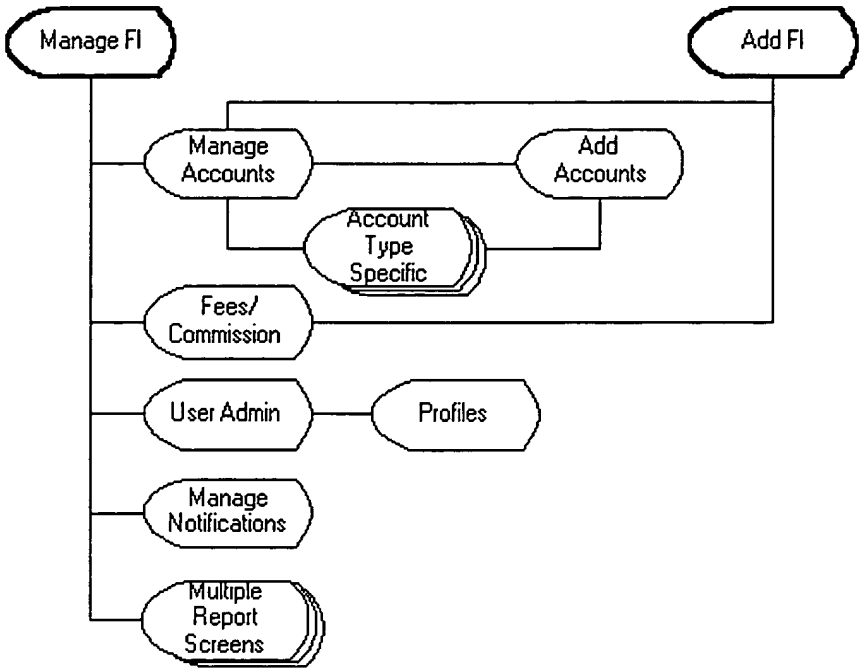

Fig. 18
Administration – Financial Institution Management Screens

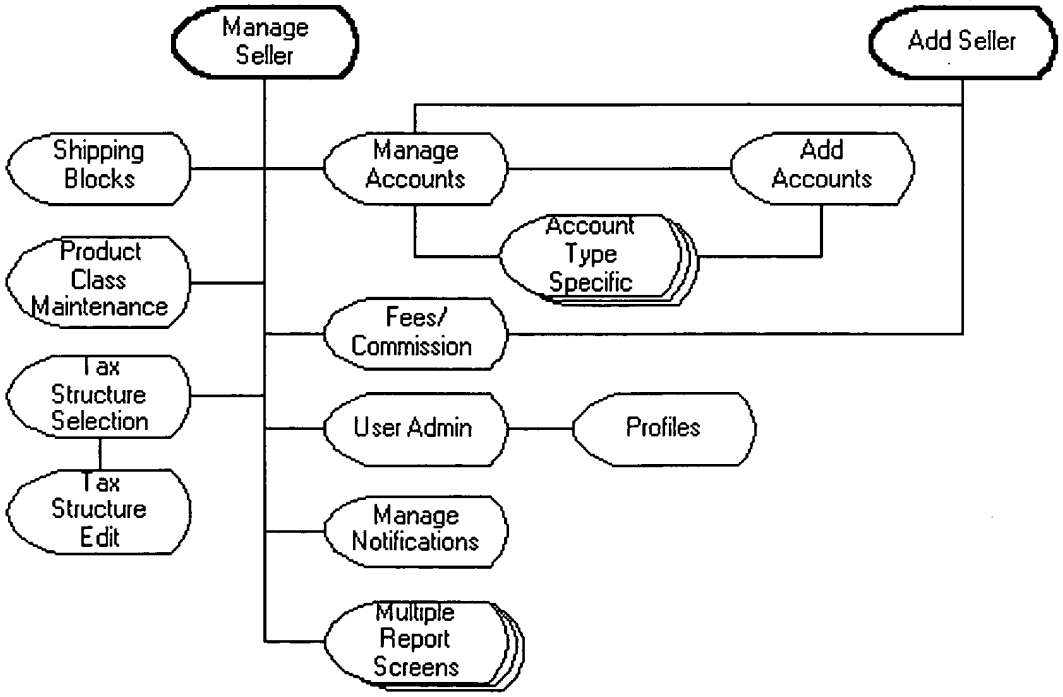

Fig. 19
Administration – Seller Management Screens

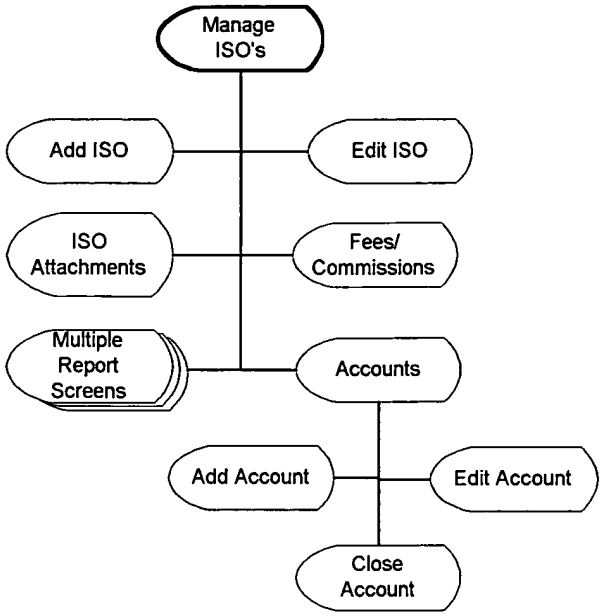

Fig. 20
Administration – Independent Sales Organization Management Screens

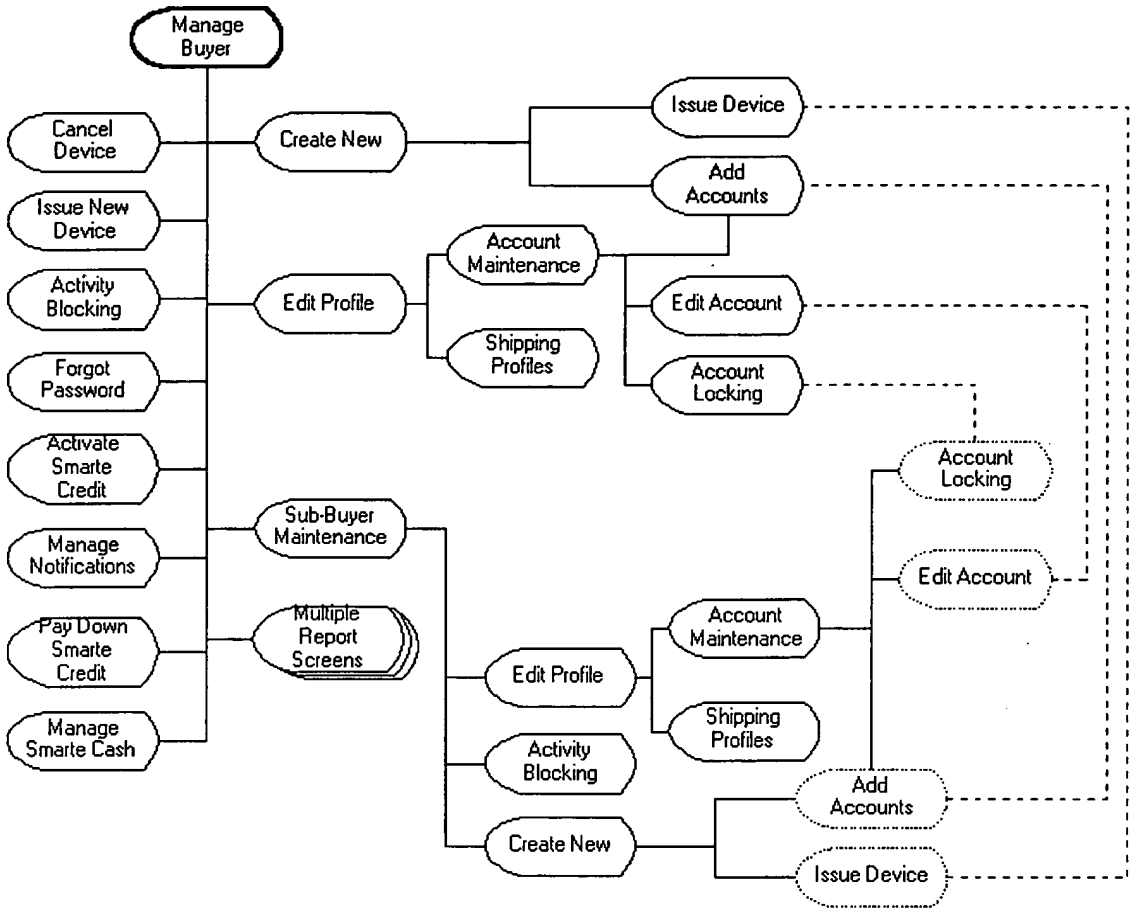

Fig. 21
Administration – Buyer Management Screens

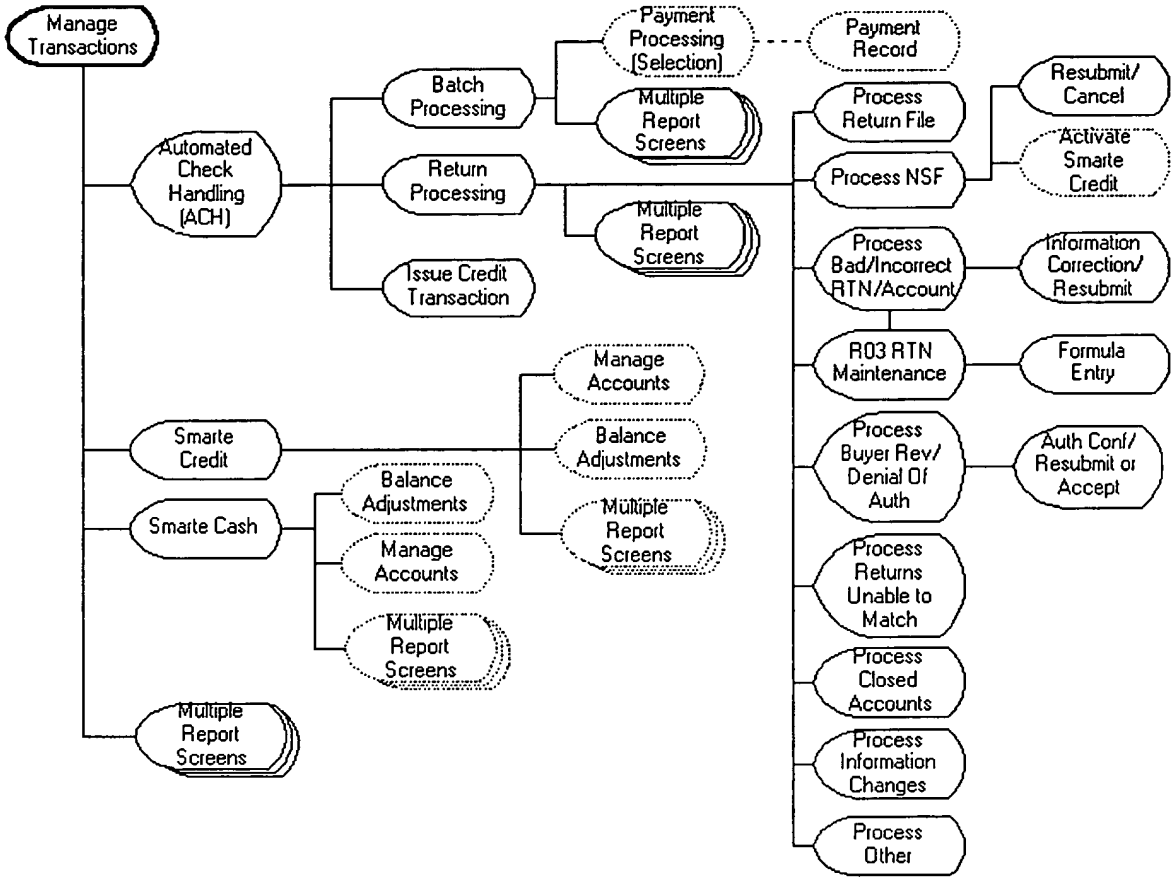

Fig. 22
Administration – Transactions/Payments/Accounts Management Screens

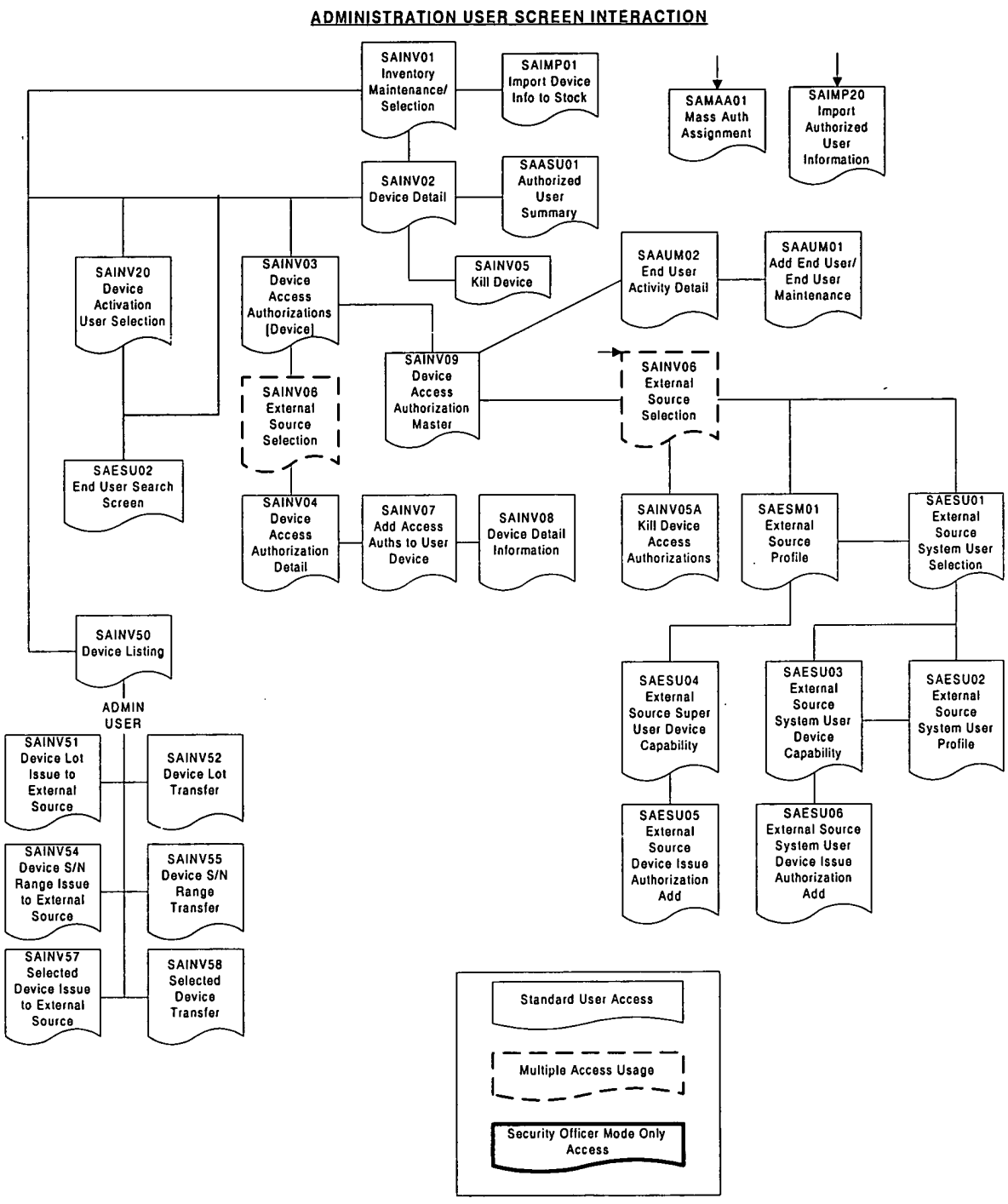

Fig. 23
Authentication

EXTERNAL SOURCE USER SCREEN INTERACTION

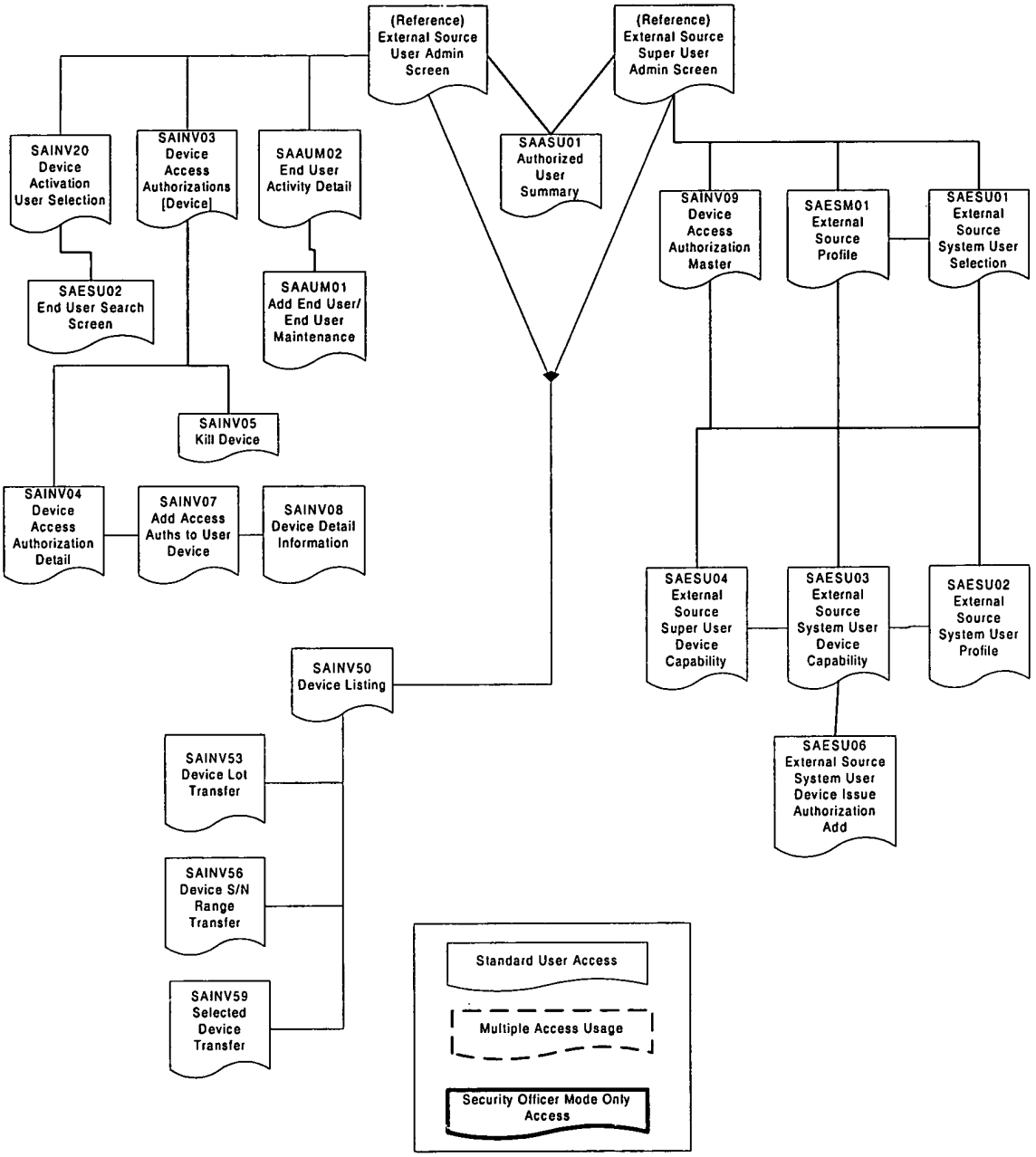

Fig. 24
Authentication

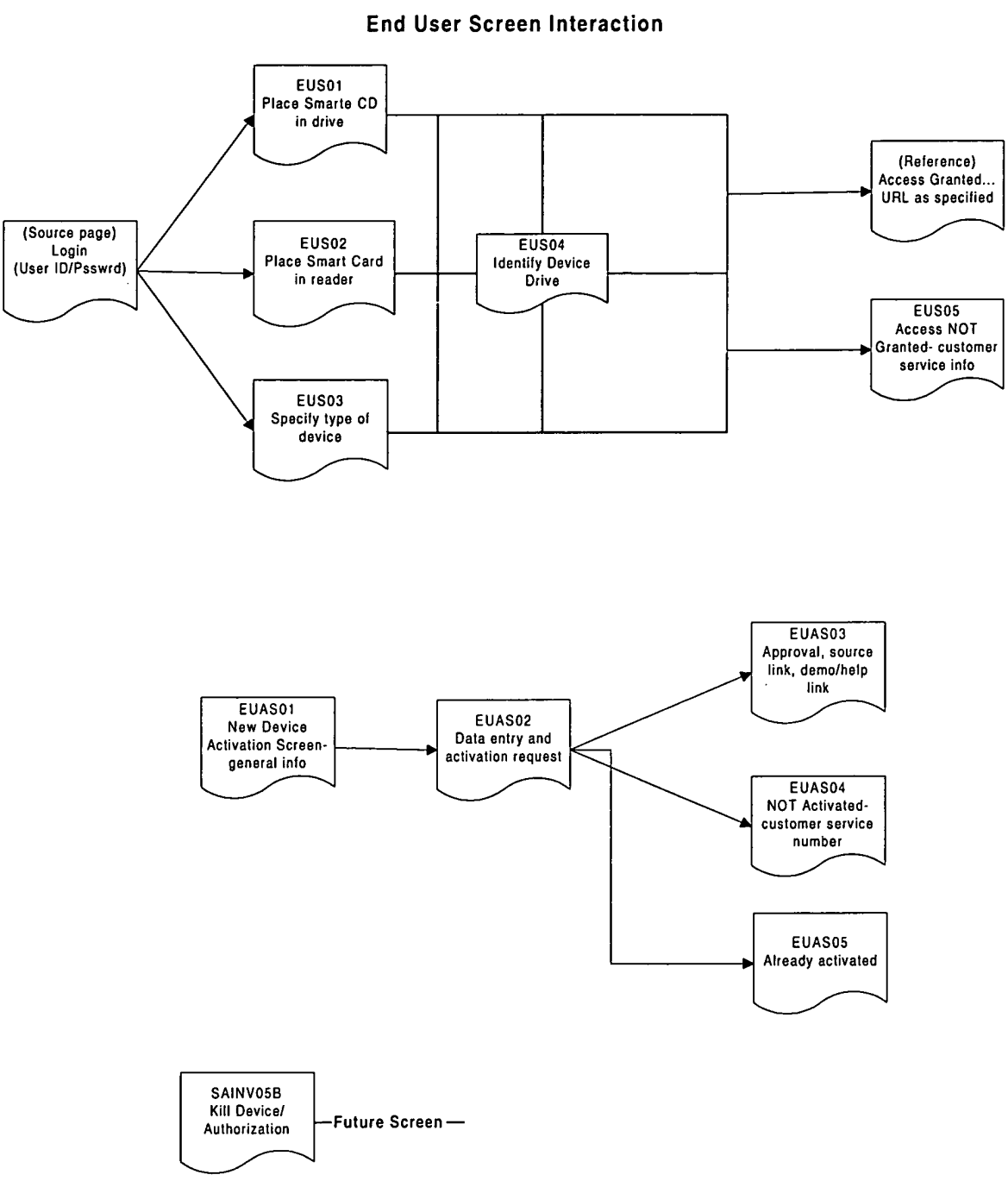

Fig. 25
Authentication

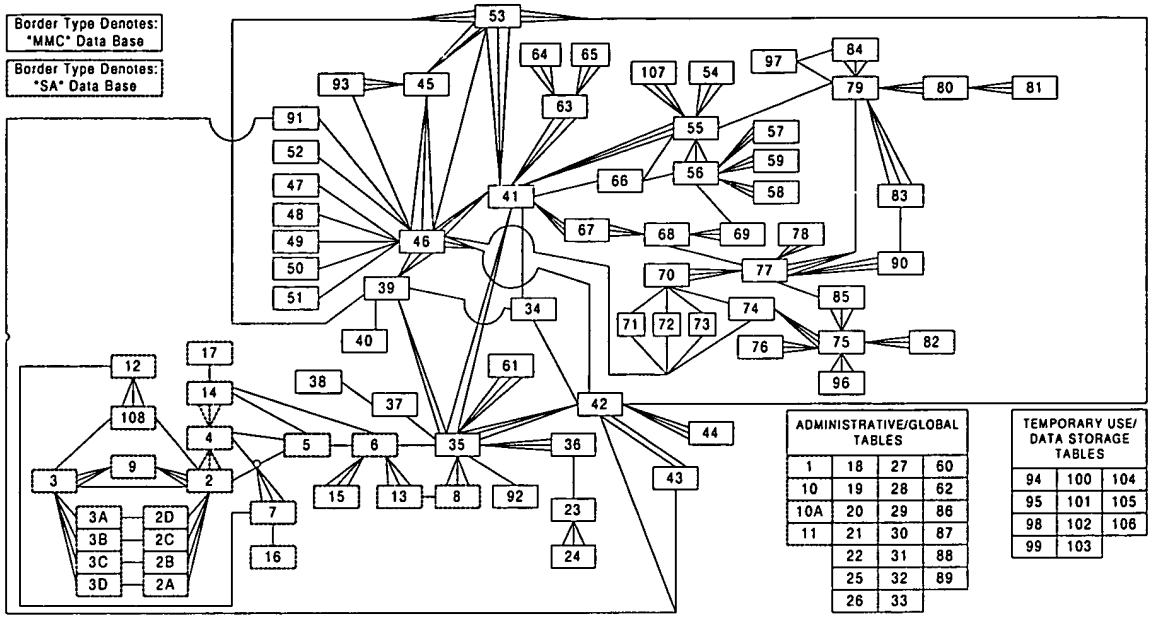

Fig. 26
System Data Structure

1	Smarte Authentication System Administration Data		51	Accounts Type Specific – Smarte Credit Card
2	Smarte Authentication User Device Master		52	Account Block Details
2A	Smarte Authentication Device Specific (Smarte CD)		53	Fees and Commission
2B	Smarte Authentication Device Specific (Smart Card)		54	Product Category Master
2C	Smarte Authentication Device Specific (RSA Token)		55	Product Class Master
2D	Smarte Auth Device Specific (Secure Comp. Token)		56	Product Master
3	Smarte Authentication Device Inventory Master		57	Product – Sub Products List
3A	Smarte Auth Device Inventory Specific (Smarte CD)		58	Product – Keywords List
3B	Smarte Auth Device Inventory Specific (Smart Card)		59	Product – Quantity Allocation
3C	Smarte Auth Device Inventory Specific (Smart Card)		60	Notification Codes
3D	SA Device Inventory Specific (Secure Comp. Token)		61	Notification Master
4	Smarte Authentication END User Master		62	Shipment Methods
5	Smarte Authentication Authorization Master		63	Shipment Method
6	Smarte Authentication External Source Master		64	Shipment Method Limits
7	Smarte Authentication External Source Device		65	Shipment Location Limits
8	Smarte Auth External Source User Device Issue Auth		66	Tax Details
9	Smarte Authentication Device Lot Master		67	Seller Order ID Master
10	Smarte Authentication Device Access Log		68	Order Master
10A	Smarte Authentication Device Access Log ARCHIVE		69	Line Items
11	Smarte Authentication Specific System Activity Log		70	Transaction (Common)
12	Smarte Authentication Product Master		71	Transaction (Account Type Specific – Smarte Cash)
13	Smarte Auth External Source Device Issue Authority		72	Transaction (Account Type Specific – Smarte Credit)
14	Smarte Auth External Source/Auth User Cross Ref		73	Transaction (Account Type Specific – Admin)
15	Smarte Auth External Source Device Control Auth		74	Transaction (Account Type Specific – Smarte ACH)
16	Smarte Authentication Device Auth Overrides		75	Transaction – Smarte Credit Loan Record
17	Smarte Authentication ES Based End User Detail		776	Transaction – Smarte Credit Payment Log Reference
18	System Administration Data		77	Order Transaction - Master
19	System Administration Data – Signup		78	Order Transaction - Details
20	System Administration Data – Product		79	Batches
21	System Administration Data – Order		80	Batch Payment Due
22	System Administration Data – Transaction		81	Payment Log Table
23	Identifier Type Master		82	Transaction – Smarte Credit Interest Log Reference
24	Identifier Type Master – List Specific		83	Transaction – Returns
25	Random Question Master		84	FED Ready File – FED File Info Table
26	General Parameters		85	Pay Down Table
27	Holiday Master		86	System Administration Data - TCN
28	Activity Master		87	System Administration Data - BCN
29	Entity Activity Log		88	System Administration Data – Order Transaction
30	Telephone Master		89	System Administration Data – Return Transaction
31	Zip Master		90	Return Transaction - Details
32	State Master		91	Sub Buyer Accounts - Allocation
33	Time Zone Master		92	Chat
34	Sign up Details		93	ISO Account Details
35	User Master		94	Order Batch EXE
36	Identifier Master (User)		95	Shopping Bag Table
37	User Block Details		96	Smarte Credit Late Fee Log
38	Administration Users Master		97	FED Ready File Status
39	FI Master		98	TMP RECORD STORE: Accounts used in Order
40	FI Specific – Banks		99	TMP RECORD STORE: Keyword in Order
41	Seller Master		100	TMP RECORD STORE: Keywords used in Order
42	Buyer Master		101	TMP RECORD STORE: Product Category Path
43	Buyer Parent-Child Relation		102	TMP RECORD STORE: Product Class Order
44	Buyer Shipping Details		103	TMP RECORD STORE: Shop Cart Items
45	ISO Profile		104	TMP RECORD STORE: Search Items
46	Accounts Master		105	TMP RECORD STORE: Activate/Interest Process Flag
47	Accounts Type Specific – Smarte Credit		106	TMP RECORD STORE: MoveMoney Identifier Master
48	Accounts Type Specific – Smarte ACH		107	Product Class Category Master
49	Accounts Type Specific – Smarte Cash		108	Smarte Authentication Product/Device Cross Reference
50	Accounts Type Specific – Admin			

Fig. 27
Key to Fig. 26 System Data Structure

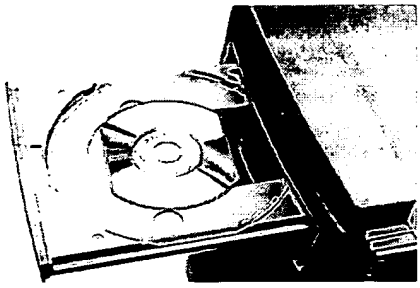

Fig. 28

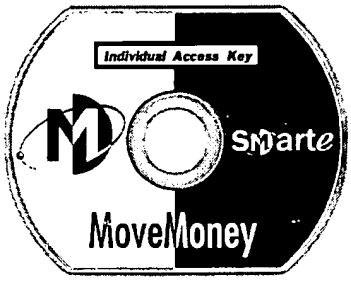

Fig. 29

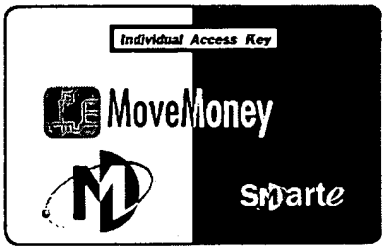

Fig. 30

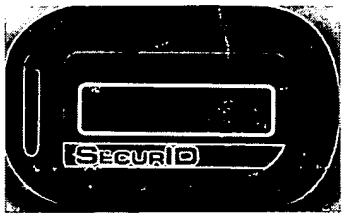

Fig. 31

FROM: 4255060660

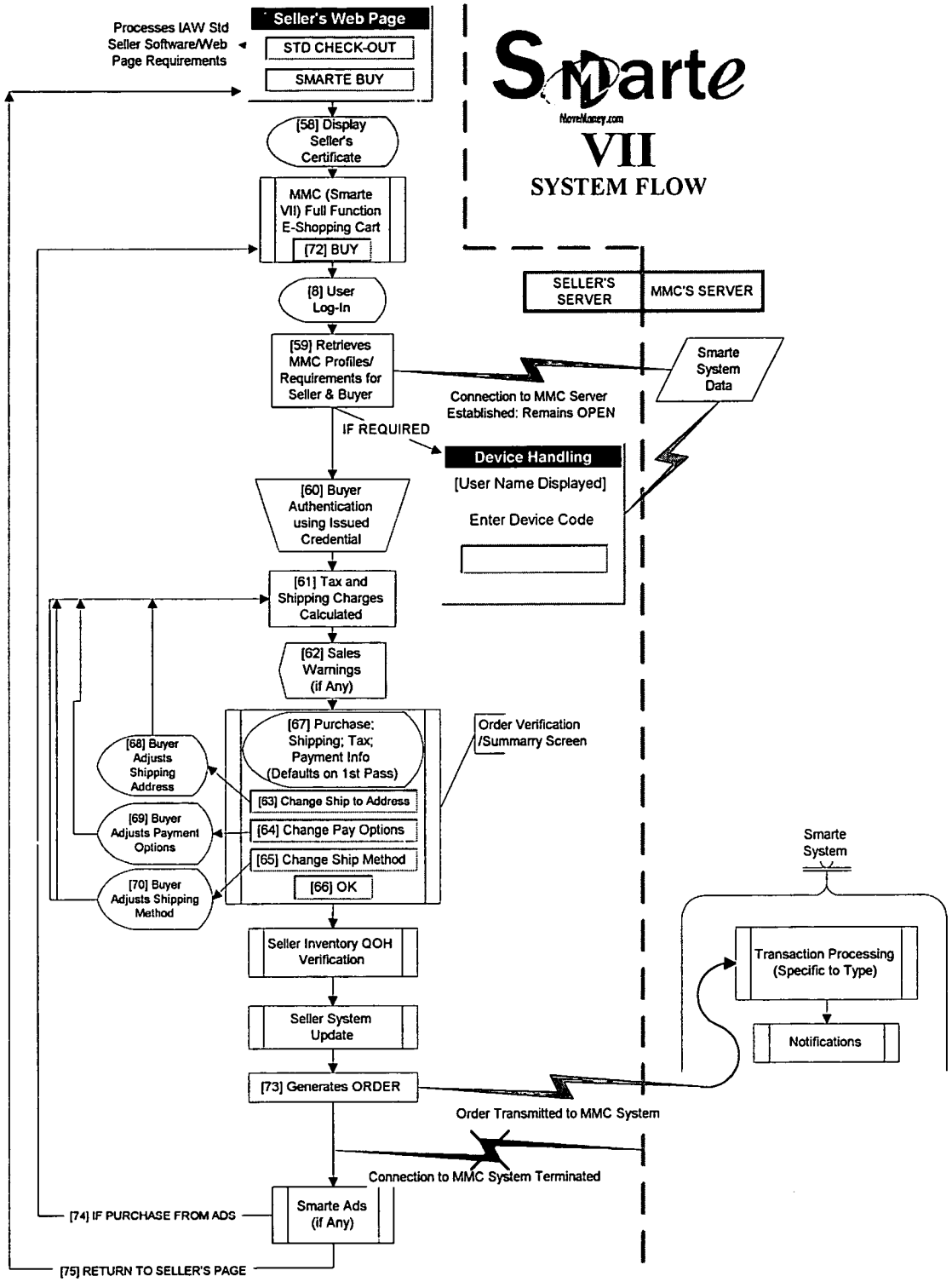
Seller's Web Page
Processes IAW Std Seller Software/Web Page Requirements
STD CHECK-OUT
SMARTE BUY
Smarte
MoneyMoney.com
VII
SYSTEM FLOW
[58] Display Seller's Certificate
MMC (Smarte VII) Full Function E-Shopping Cart
[72] BUY
SELLER'S SERVER
MMC'S SERVER
[8] User Log-In
[59] Retrieves MMC Profiles/ Requirements for Seller & Buyer
Smarte System Data
Connection to MMC Server Established: Remains OPEN
IF REQUIRED
Device Handling
[User Name Displayed]
Enter Device Code
[60] Buyer Authentication using Issued Credential
[61] Tax and Shipping Charges Calculated
[62] Sales Warnings (if Any)
[67] Purchase: Shipping; Tax; Payment Info (Defaults on 1st Pass)
Order Verification /Summary Screen
[68] Buyer Adjusts Shipping Address
[63] Change Ship to Address
[69] Buyer Adjusts Payment Options
[64] Change Pay Options
[65] Change Ship Method
[70] Buyer Adjusts Shipping Method
[66] OK
Smarte System
Seller Inventory QOH Verification
Transaction Processing (Specific to Type)
Seller System Update
Notifications
[73] Generates ORDER
Order Transmitted to MMC System
Connection to MMC System Terminated
[74] IF PURCHASE FROM ADS
Smarte Ads (if Any)
[75] RETURN TO SELLER'S PAGE

Fig. 32

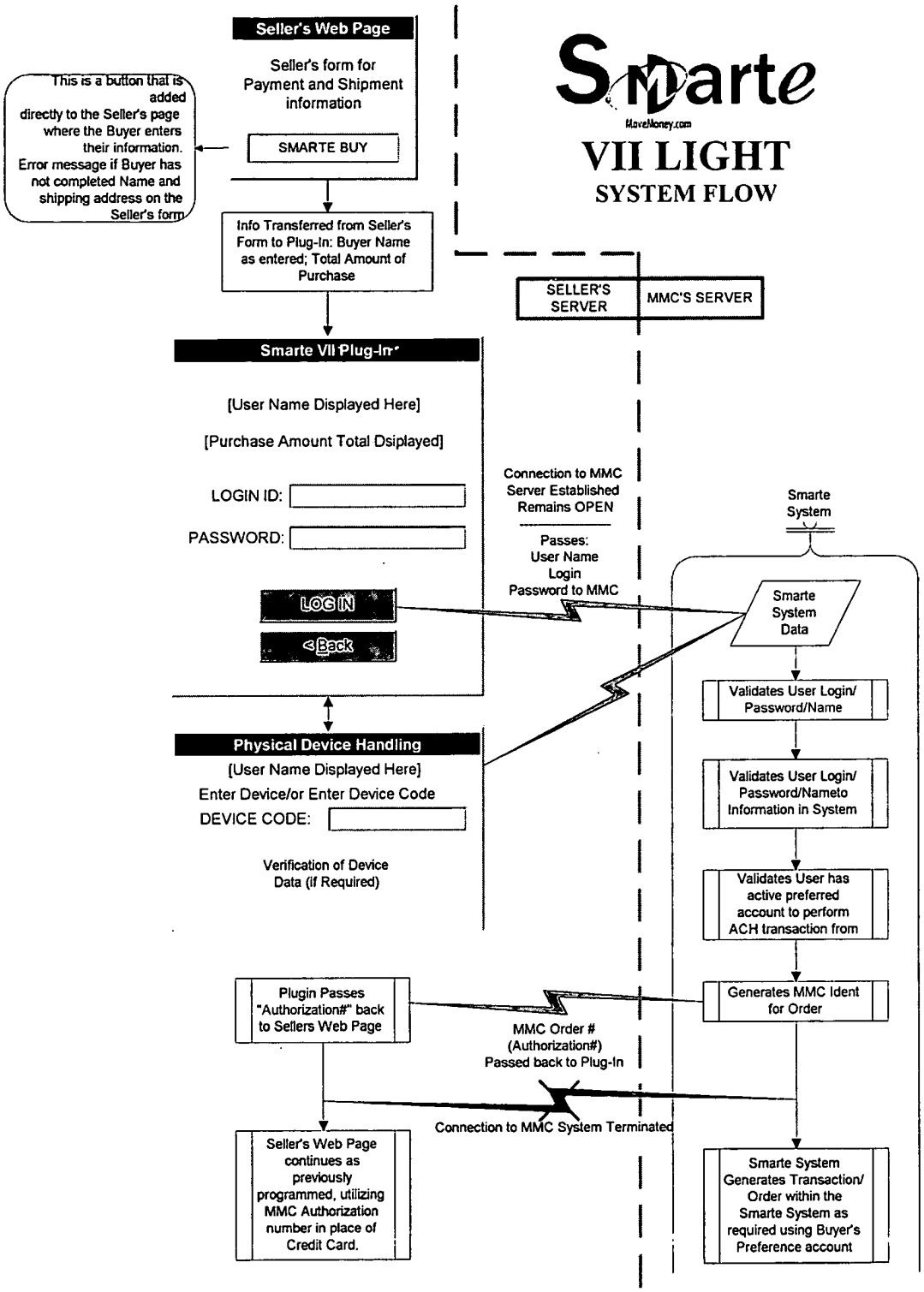
Seller's Web Page
Seller's form for Payment and Shipment information
SMARTE BUY
This is a button that is added directly to the Seller's page where the Buyer enters their information. Error message if Buyer has not completed Name and shipping address on the Seller's form
Info Transferred from Seller's Form to Plug-In: Buyer Name as entered; Total Amount of Purchase
Smarte MoveMoney.com
VII LIGHT
SYSTEM FLOW
SELLER'S SERVER
MMC'S SERVER
Smarte VII Plug-In
[User Name Displayed Here]
[Purchase Amount Total Dsiplayed]
LOGIN ID:
PASSWORD:
LOG IN
Back
Connection to MMC Server Established Remains OPEN
Passes: User Name Login Password to MMC
Smarte System
Smarte System Data
Validates User Login/ Password/Name
Validates User Login/ Password/Nameto Information in System
Validates User has active preferred account to perform ACH transaction from
Physical Device Handling
[User Name Displayed Here]
Enter Device/or Enter Device Code
DEVICE CODE:
Verification of Device Data (if Required)
Plugin Passes "Authorization#" back to Sellers Web Page
Generates MMC Ident for Order
MMC Order # (Authorization#) Passed back to Plug-In
Connection to MMC System Terminated
Seller's Web Page continues as previously programmed, utilizing MMC Authorization number in place of Credit Card.
Smarte System Generates Transaction/ Order within the Smarte System as required using Buyer's Preference account

Fig. 33

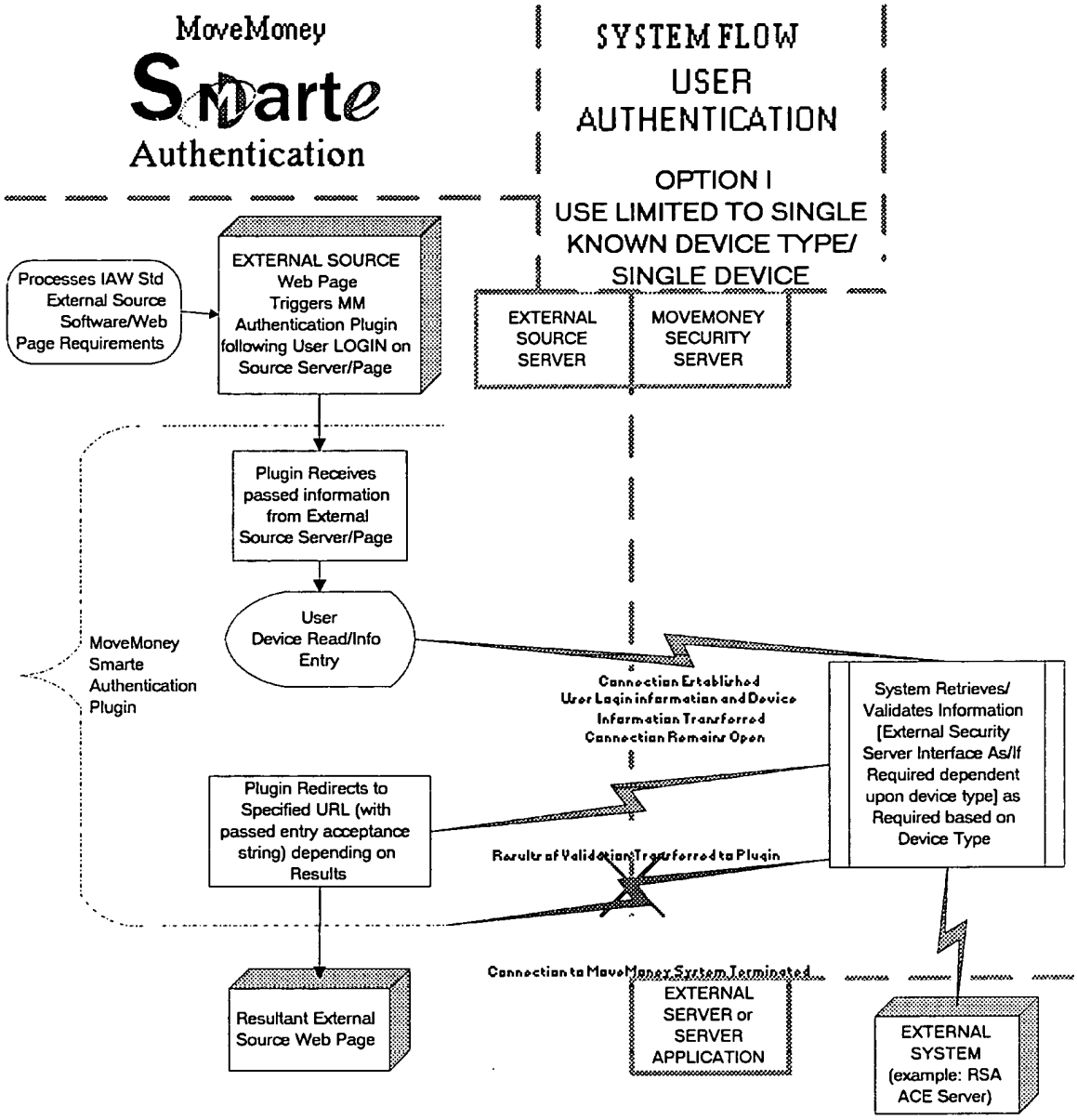
MoveMoney
Smarte
Authentication
SYSTEM FLOW
USER
AUTHENTICATION
OPTION I
USE LIMITED TO SINGLE
KNOWN DEVICE TYPE/
SINGLE DEVICE
Processes IAW Std External Source Software/Web Page Requirements
EXTERNAL SOURCE Web Page Triggers MM Authentication Plugin following User LOGIN on Source Server/Page
EXTERNAL SOURCE SERVER
MOVEMONEY SECURITY SERVER
Plugin Receives passed information from External Source Server/Page
User Device Read/Info Entry
MoveMoney Smarte Authentication Plugin
Connection Established
User Login information and Device Information Transferred
Connection Remains Open
System Retrieves/ Validates Information [External Security Server Interface As/If Required dependent upon device type] as Required based on Device Type
Plugin Redirects to Specified URL (with passed entry acceptance string) depending on Results
Result of Validation Transferred to Plugin
Connection to MoveMoney System Terminated
Resultant External Source Web Page
EXTERNAL SERVER or SERVER APPLICATION
EXTERNAL SYSTEM (example: RSA ACE Server)

Fig. 34

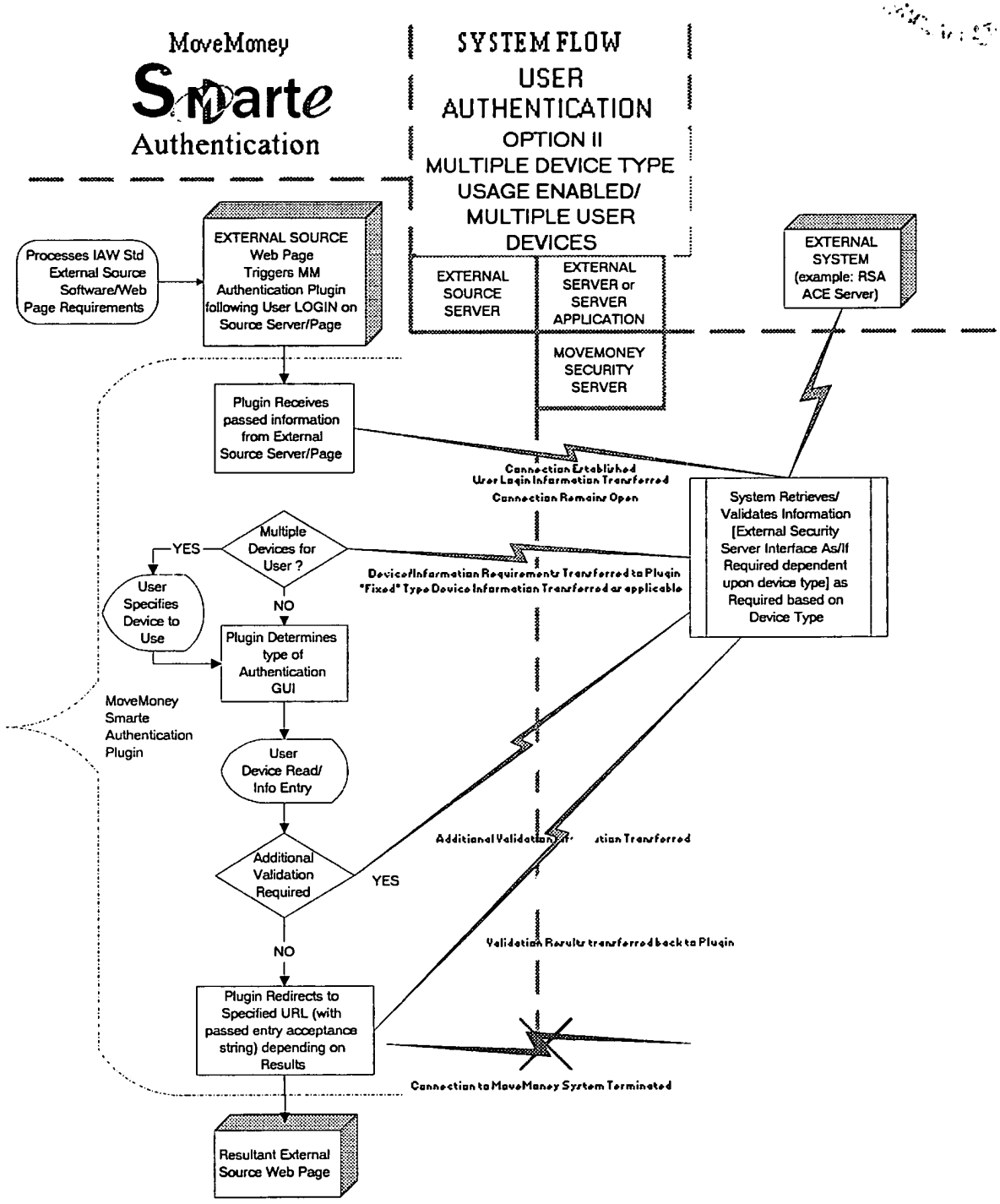
MoveMoney
Smarte
Authentication
SYSTEM FLOW
USER AUTHENTICATION
OPTION II
MULTIPLE DEVICE TYPE USAGE ENABLED/ MULTIPLE USER DEVICES
EXTERNAL SOURCE SERVER
EXTERNAL SERVER or SERVER APPLICATION
MOVEMONEY SECURITY SERVER
EXTERNAL SYSTEM (example: RSA ACE Server)
Processes IAW Std External Source Software/Web Page Requirements
EXTERNAL SOURCE Web Page Triggers MM Authentication Plugin following User LOGIN on Source Server/Page
Plugin Receives passed information from External Source Server/Page
Connection Established
User Login Information Transferred
Connection Remains Open
System Retrieves/ Validates Information [External Security Server Interface As/If Required dependent upon device type] as Required based on Device Type
Multiple Devices for User ?
YES
NO
User Specifies Device to Use
Device/Information Requirements Transferred to Plugin
"Fixed" Type Device Information Transferred as applicable
Plugin Determines type of Authentication GUI
MoveMoney Smarte Authentication Plugin
User Device Read/ Info Entry
Additional Validation Required
YES
NO
Additional Validation ... tion Transferred
Validation Results transferred back to Plugin
Plugin Redirects to Specified URL (with passed entry acceptance string) depending on Results
Connection to MoveMoney System Terminated
Resultant External Source Web Page

Fig. 35

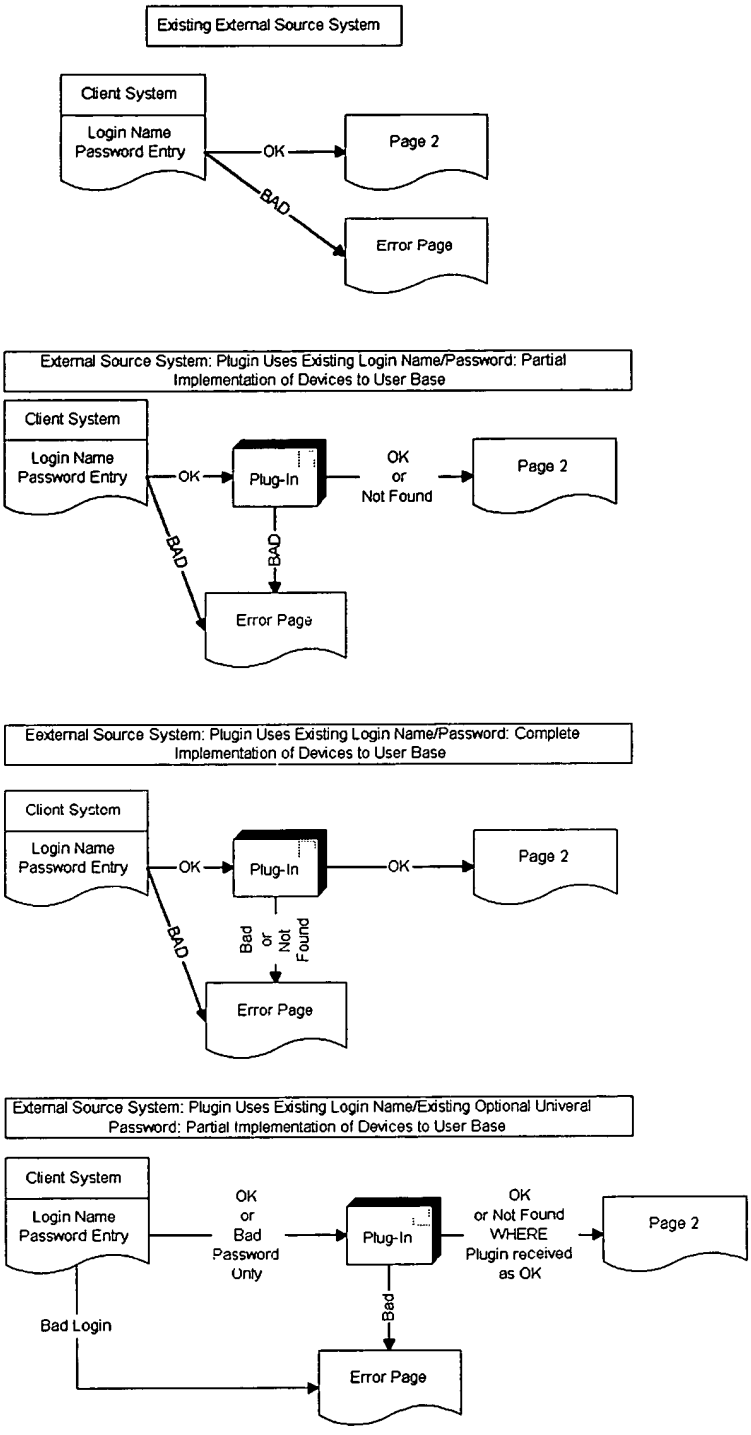
Existing External Source System
Client System
Login Name
Password Entry
OK
BAD
Page 2
Error Page
External Source System: Plugin Uses Existing Login Name/Password: Partial Implementation of Devices to User Base
Client System
Login Name
Password Entry
OK
Plug-In
OK
or
Not Found
Page 2
BAD
BAD
Error Page
Eexternal Source System: Plugin Uses Existing Login Name/Password: Complete Implementation of Devices to User Base
Client System
Login Name
Password Entry
OK
Plug-In
OK
Page 2
BAD
Bad
or
Not
Found
Error Page
External Source System: Plugin Uses Existing Login Name/Existing Optional Univeral Password: Partial Implementation of Devices to User Base
Client System
Login Name
Password Entry
OK
or
Bad
Password
Only
Plug-In
OK
or Not Found
WHERE
Plugin received
as OK
Page 2
Bad
Bad Login
Error Page

Fig. 36

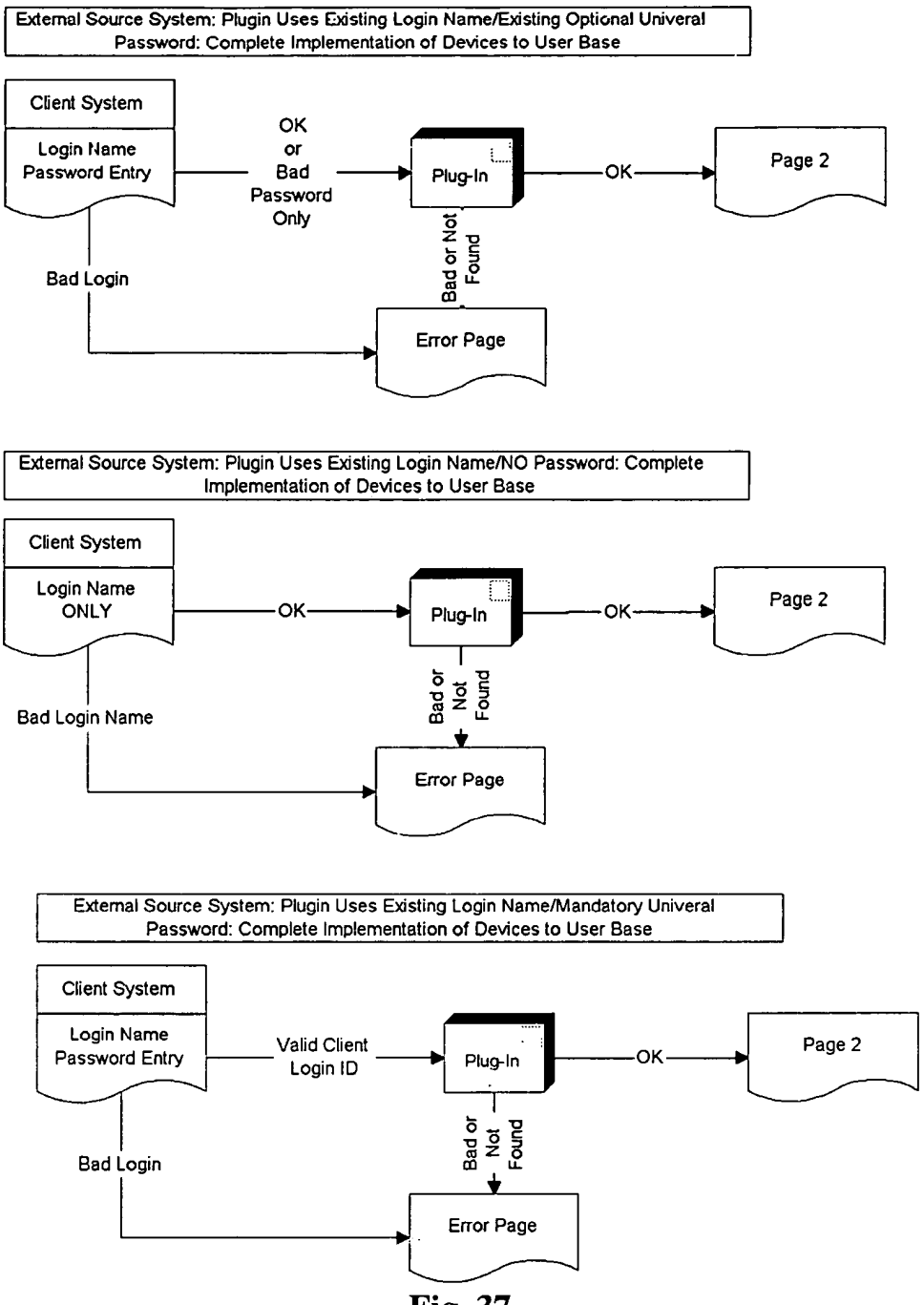
External Source System: Plugin Uses Existing Login Name/Existing Optional Univeral Password: Complete Implementation of Devices to User Base
Client System
Login Name
Password Entry
OK
or
Bad
Password
Only
Plug-In
OK
Page 2
Bad or Not Found
Bad Login
Error Page
External Source System: Plugin Uses Existing Login Name/NO Password: Complete Implementation of Devices to User Base
Client System
Login Name
ONLY
OK
Plug-In
OK
Page 2
Bad or Not Found
Bad Login Name
Error Page
External Source System: Plugin Uses Existing Login Name/Mandatory Univeral Password: Complete Implementation of Devices to User Base
Client System
Login Name
Password Entry
Valid Client
Login ID
Plug-In
OK
Page 2
Bad or Not Found
Bad Login
Error Page

Fig. 37

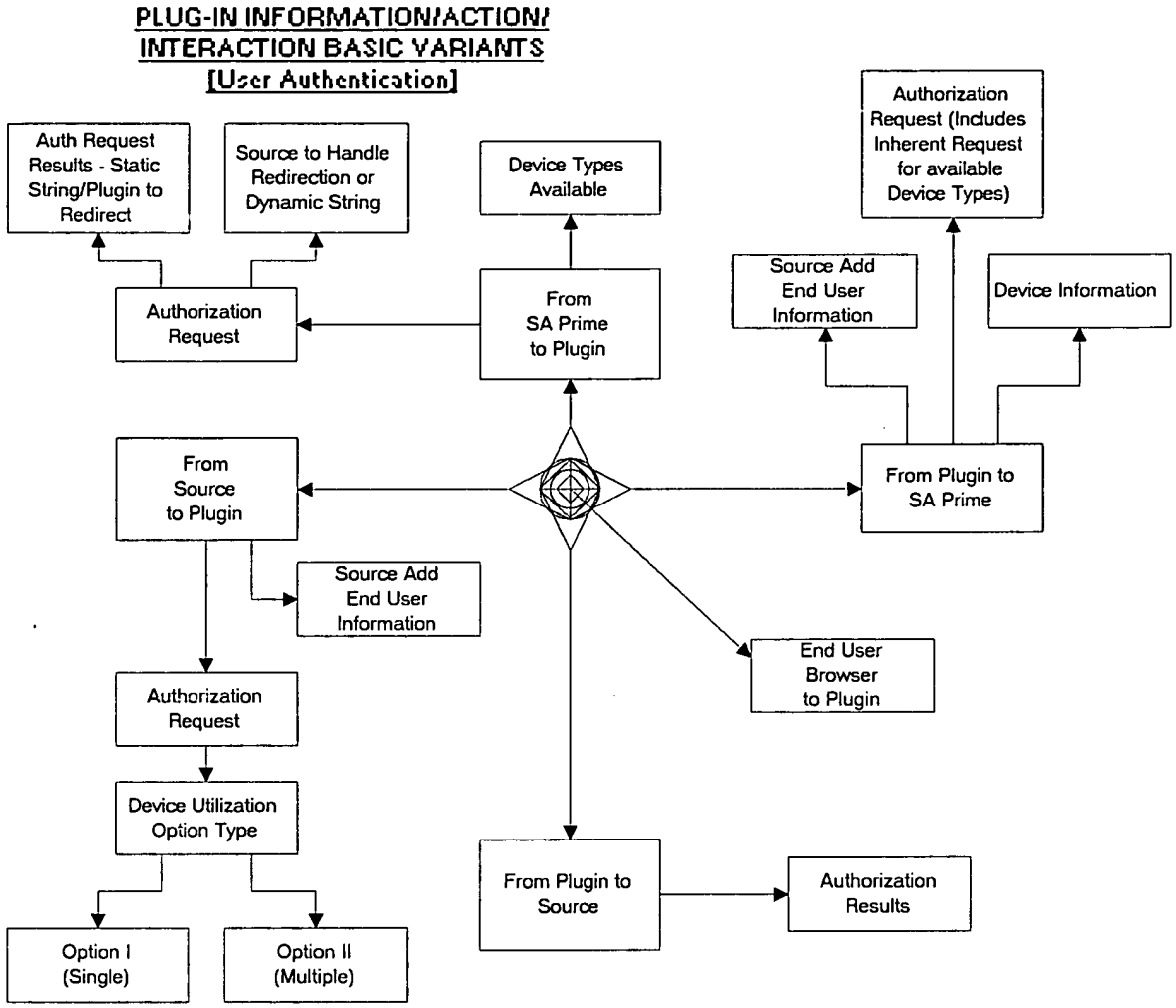
PLUG-IN INFORMATION/ACTION/
INTERACTION BASIC VARIANTS
[User Authentication]
Auth Request Results - Static String/Plugin to Redirect
Source to Handle Redirection or Dynamic String
Device Types Available
Authorization Request (Includes Inherent Request for available Device Types)
Authorization Request
From SA Prime to Plugin
Source Add End User Information
Device Information
From Source to Plugin
From Plugin to SA Prime
Source Add End User Information
End User Browser to Plugin
Authorization Request
Device Utilization Option Type
From Plugin to Source
Authorization Results
Option I (Single)
Option II (Multiple)

Fig. 38

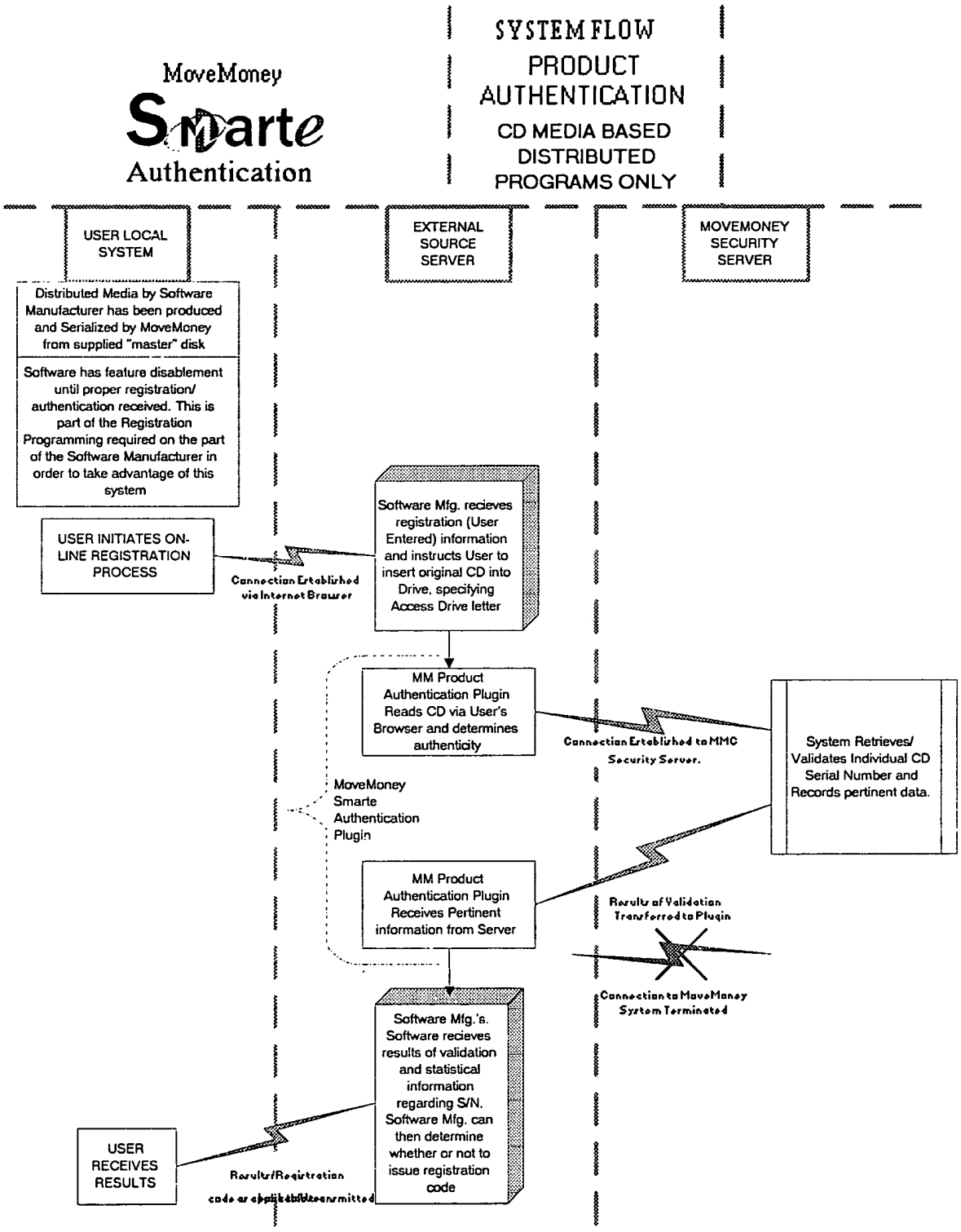
MoveMoney
Smarte
Authentication
SYSTEM FLOW
PRODUCT AUTHENTICATION
CD MEDIA BASED DISTRIBUTED PROGRAMS ONLY
USER LOCAL SYSTEM
EXTERNAL SOURCE SERVER
MOVEMONEY SECURITY SERVER
Distributed Media by Software Manufacturer has been produced and Serialized by MoveMoney from supplied "master" disk
Software has feature disablement until proper registration/ authentication received. This is part of the Registration Programming required on the part of the Software Manufacturer in order to take advantage of this system
USER INITIATES ON-LINE REGISTRATION PROCESS
Connection Established via Internet Browser
Software Mfg. recieves registration (User Entered) information and instructs User to insert original CD into Drive, specifying Access Drive letter
MM Product Authentication Plugin Reads CD via User's Browser and determines authenticity
Connection Established to MMC Security Server.
System Retrieves/ Validates Individual CD Serial Number and Records pertinent data.
MoveMoney Smarte Authentication Plugin
MM Product Authentication Plugin Receives Pertinent information from Server
Results of Validation Transferred to Plugin
Connection to MoveMoney System Terminated
Software Mfg.'s. Software recieves results of validation and statistical information regarding S/N. Software Mfg. can then determine whether or not to issue registration code
USER RECEIVES RESULTS
Results/Registration code or activation transmitted

Fig. 39

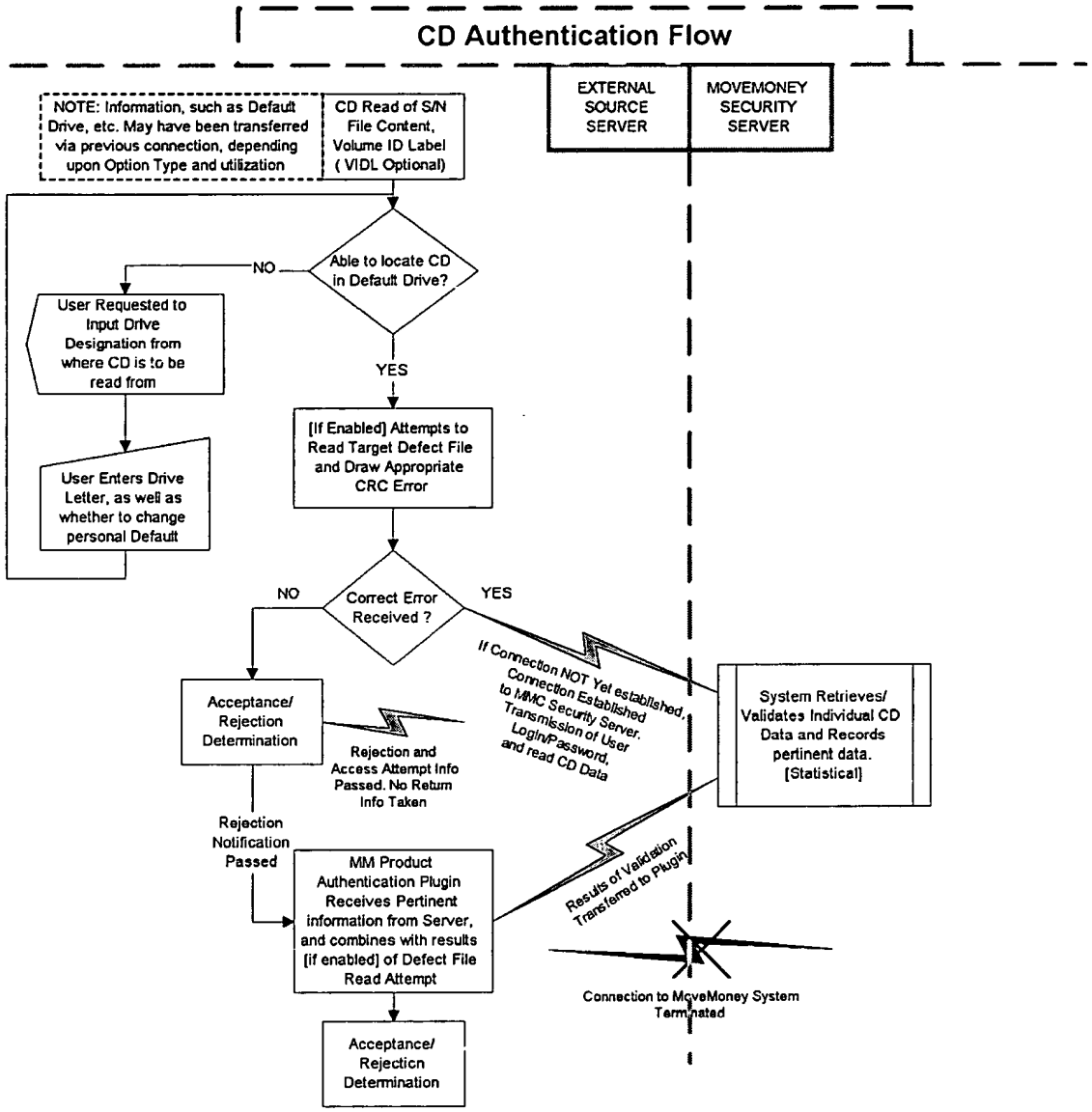
CD Authentication Flow
EXTERNAL SOURCE SERVER
MOVEMONEY SECURITY SERVER
NOTE: Information, such as Default Drive, etc. May have been transferred via previous connection, depending upon Option Type and utilization
CD Read of S/N File Content, Volume ID Label (VIDL Optional)
Able to locate CD in Default Drive?
NO
YES
User Requested to Input Drive Designation from where CD is to be read from
User Enters Drive Letter, as well as whether to change personal Default
[If Enabled] Attempts to Read Target Defect File and Draw Appropriate CRC Error
Correct Error Received ?
NO
YES
Acceptance/ Rejection Determination
Rejection and Access Attempt Info Passed. No Return Info Taken
If Connection NOT Yet established, Connection Established to MMC Security Server. Transmission of User Login/Password, and read CD Data
System Retrieves/ Validates Individual CD Data and Records pertinent data. [Statistical]
Rejection Notification Passed
MM Product Authentication Plugin Receives Pertinent information from Server, and combines with results [if enabled] of Defect File Read Attempt
Results of Validation Transferred to Plugin
Connection to MoveMoney System Terminated
Acceptance/ Rejection Determination

Fig. 40

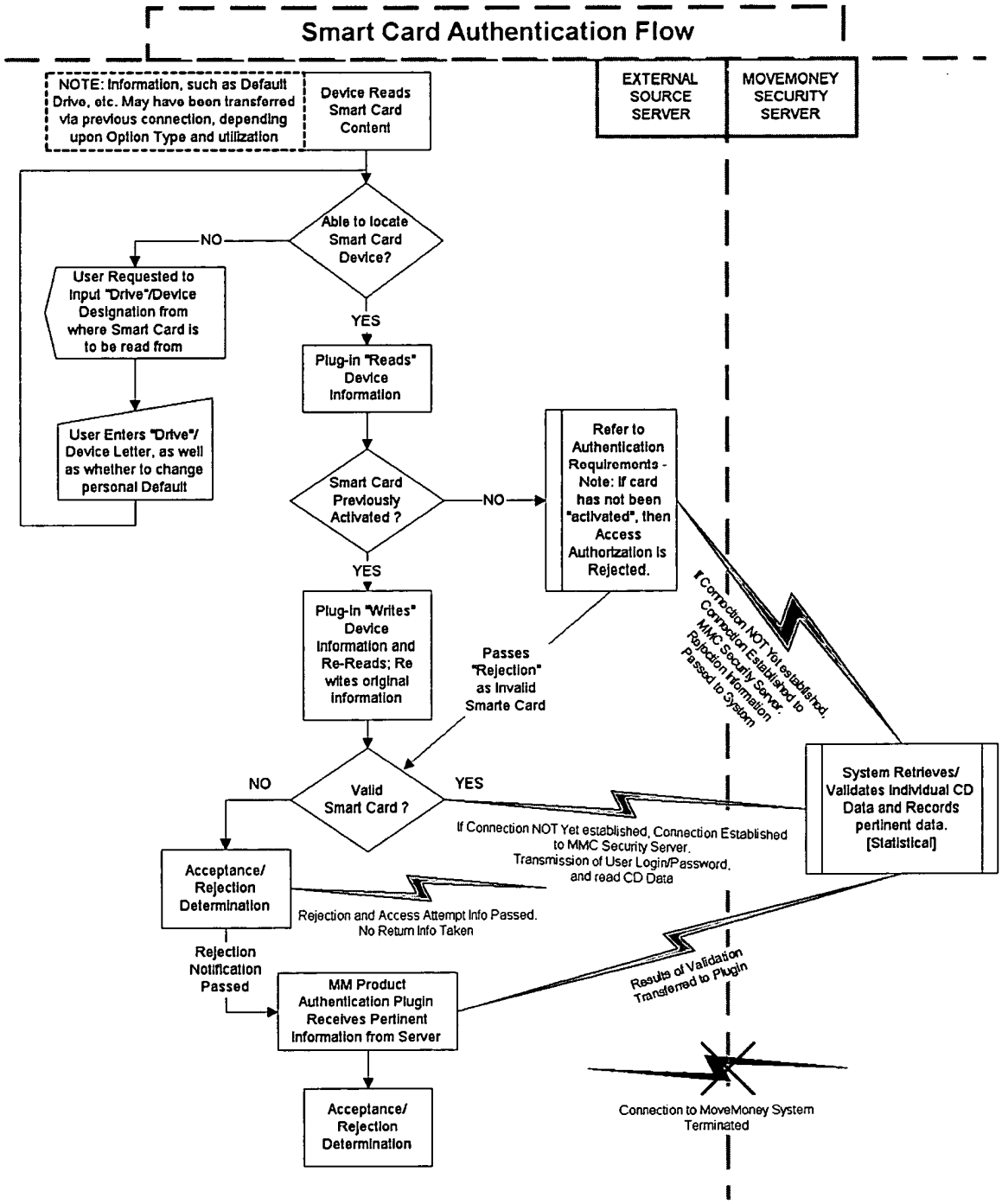
Smart Card Authentication Flow
NOTE: Information, such as Default Drive, etc. May have been transferred via previous connection, depending upon Option Type and utilization
Device Reads Smart Card Content
EXTERNAL SOURCE SERVER
MOVEMONEY SECURITY SERVER
Able to locate Smart Card Device?
NO
YES
User Requested to Input "Drive"/Device Designation from where Smart Card is to be read from
User Enters "Drive"/ Device Letter, as well as whether to change personal Default
Plug-in "Reads" Device Information
Smart Card Previously Activated ?
NO
YES
Refer to Authentication Requirements - Note: If card has not been "activated", then Access Authorization is Rejected.
If Connection NOT Yet established, Connection Established to MMC Security Server. Rejection Information Passed to System
Plug-in "Writes" Device Information and Re-Reads; Re writes original information
Passes "Rejection" as Invalid Smarte Card
Valid Smart Card ?
NO
YES
System Retrieves/ Validates Individual CD Data and Records pertinent data. [Statistical]
If Connection NOT Yet established, Connection Established to MMC Security Server. Transmission of User Login/Password, and read CD Data
Acceptance/ Rejection Determination
Rejection and Access Attempt Info Passed. No Return Info Taken
Rejection Notification Passed
MM Product Authentication Plugin Receives Pertinent Information from Server
Results of Validation Transferred to Plugin
Acceptance/ Rejection Determination
Connection to MoveMoney System Terminated

Fig. 41

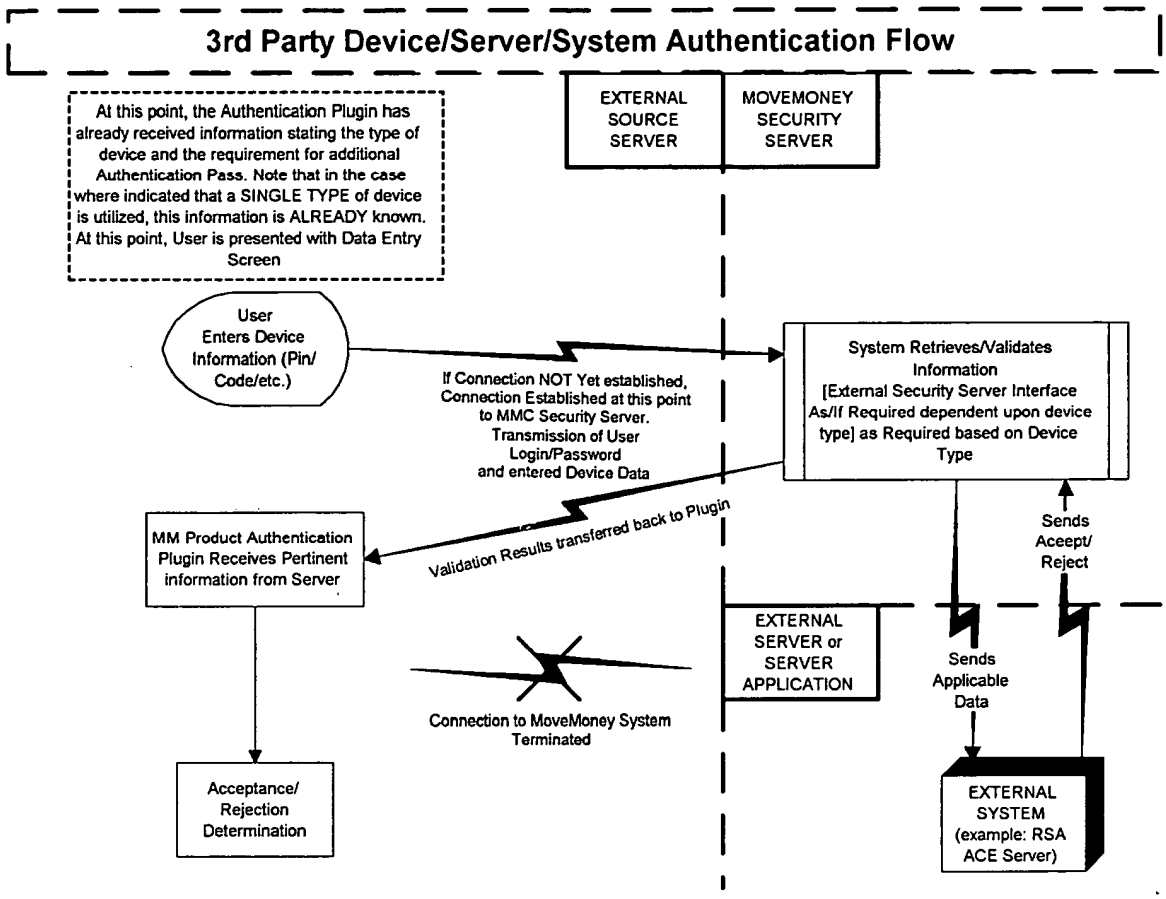
3rd Party Device/Server/System Authentication Flow
EXTERNAL SOURCE SERVER
MOVEMONEY SECURITY SERVER
At this point, the Authentication Plugin has already received information stating the type of device and the requirement for additional Authentication Pass. Note that in the case where indicated that a SINGLE TYPE of device is utilized, this information is ALREADY known. At this point, User is presented with Data Entry Screen
User Enters Device Information (Pin/ Code/etc.)
If Connection NOT Yet established, Connection Established at this point to MMC Security Server. Transmission of User Login/Password and entered Device Data
System Retrieves/Validates Information [External Security Server Interface As/If Required dependent upon device type] as Required based on Device Type
Validation Results transferred back to Plugin
MM Product Authentication Plugin Receives Pertinent information from Server
Sends Aceept/ Reject
EXTERNAL SERVER or SERVER APPLICATION
Sends Applicable Data
Connection to MoveMoney System Terminated
Acceptance/ Rejection Determination
EXTERNAL SYSTEM (example: RSA ACE Server)

Fig. 42

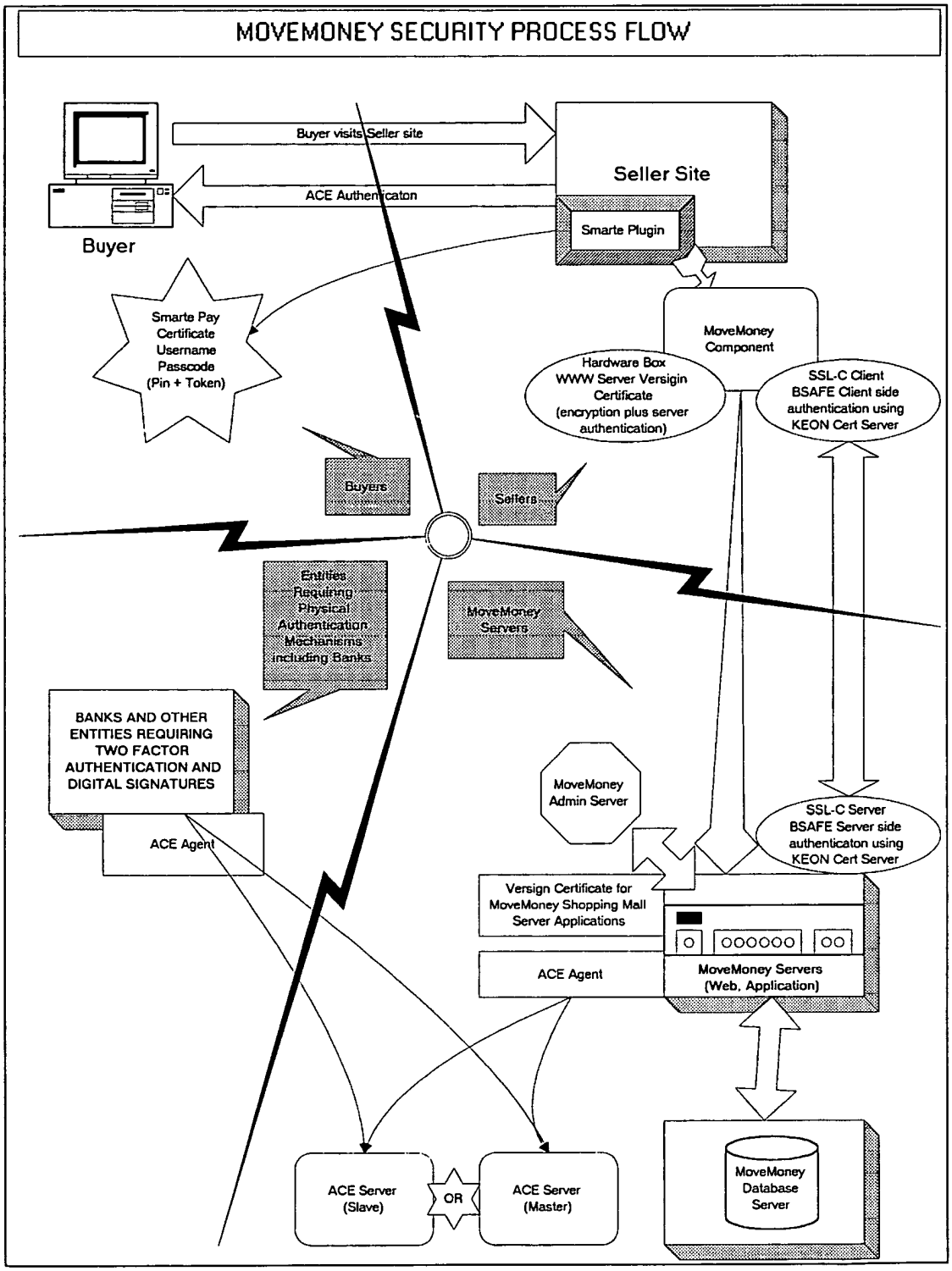
MOVEMONEY SECURITY PROCESS FLOW
Buyer visits Seller site
ACE Authenticaton
Seller Site
Smarte Plugin
Buyer
Smarte Pay
Certificate
Username
Passcode
(Pin + Token)
MoveMoney
Component
Hardware Box
WWW Server Versigin
Certificate
(encryption plus server
authentication)
SSL-C Client
BSAFE Client side
authentication using
KEON Cert Server
Buyers
Sellers
Entities
Requiring
Physical
Authentication
Mechanisms
including Banks
MoveMoney
Servers
BANKS AND OTHER
ENTITIES REQUIRING
TWO FACTOR
AUTHENTICATION AND
DIGITAL SIGNATURES
ACE Agent
MoveMoney
Admin Server
SSL-C Server
BSAFE Server side
authenticaton using
KEON Cert Server
Versign Certificate for
MoveMoney Shopping Mall
Server Applications
ACE Agent
MoveMoney Servers
(Web, Application)
ACE Server
(Slave)
OR
ACE Server
(Master)
MoveMoney
Database
Server

Fig. 43

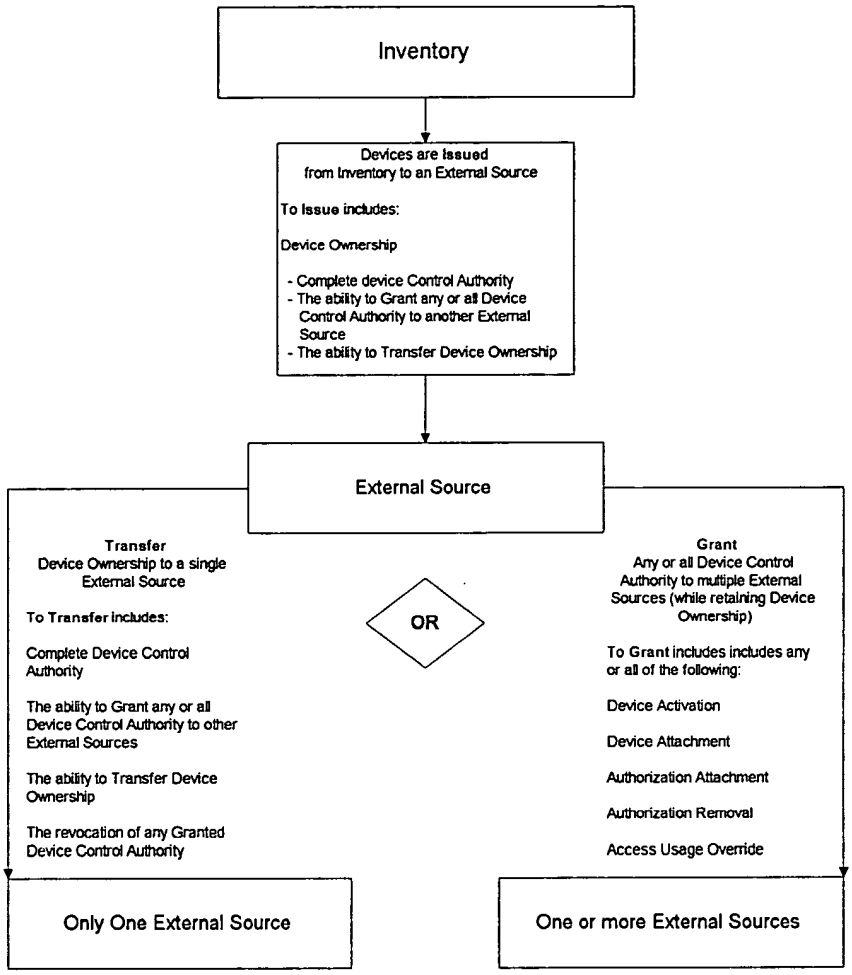
Inventory
Devices are issued from Inventory to an External Source
To Issue includes:
Device Ownership
- Complete device Control Authority
- The ability to Grant any or all Device Control Authority to another External Source
- The ability to Transfer Device Ownership
External Source
Transfer
Device Ownership to a single External Source
To Transfer includes:
Complete Device Control Authority
The ability to Grant any or all Device Control Authority to other External Sources
The ability to Transfer Device Ownership
The revocation of any Granted Device Control Authority
OR
Grant
Any or all Device Control Authority to multiple External Sources (while retaining Device Ownership)
To Grant includes includes any or all of the following:
Device Activation
Device Attachment
Authorization Attachment
Authorization Removal
Access Usage Override
Only One External Source
One or more External Sources

Fig. 44

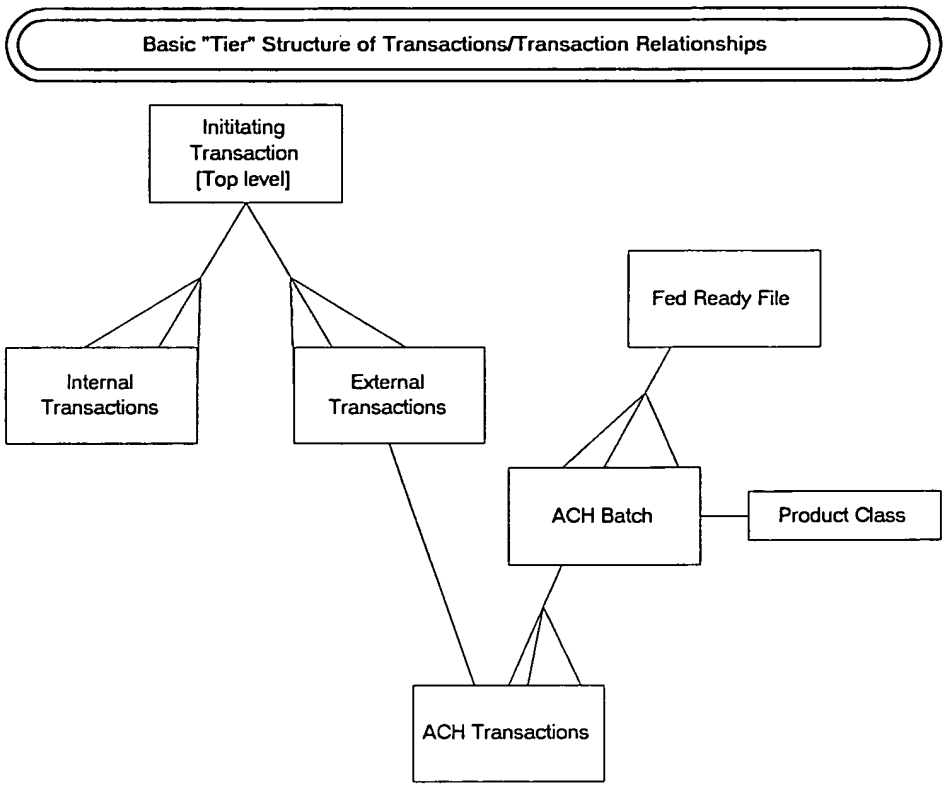

Fig. 45

FP0214PCT 2005-12-15

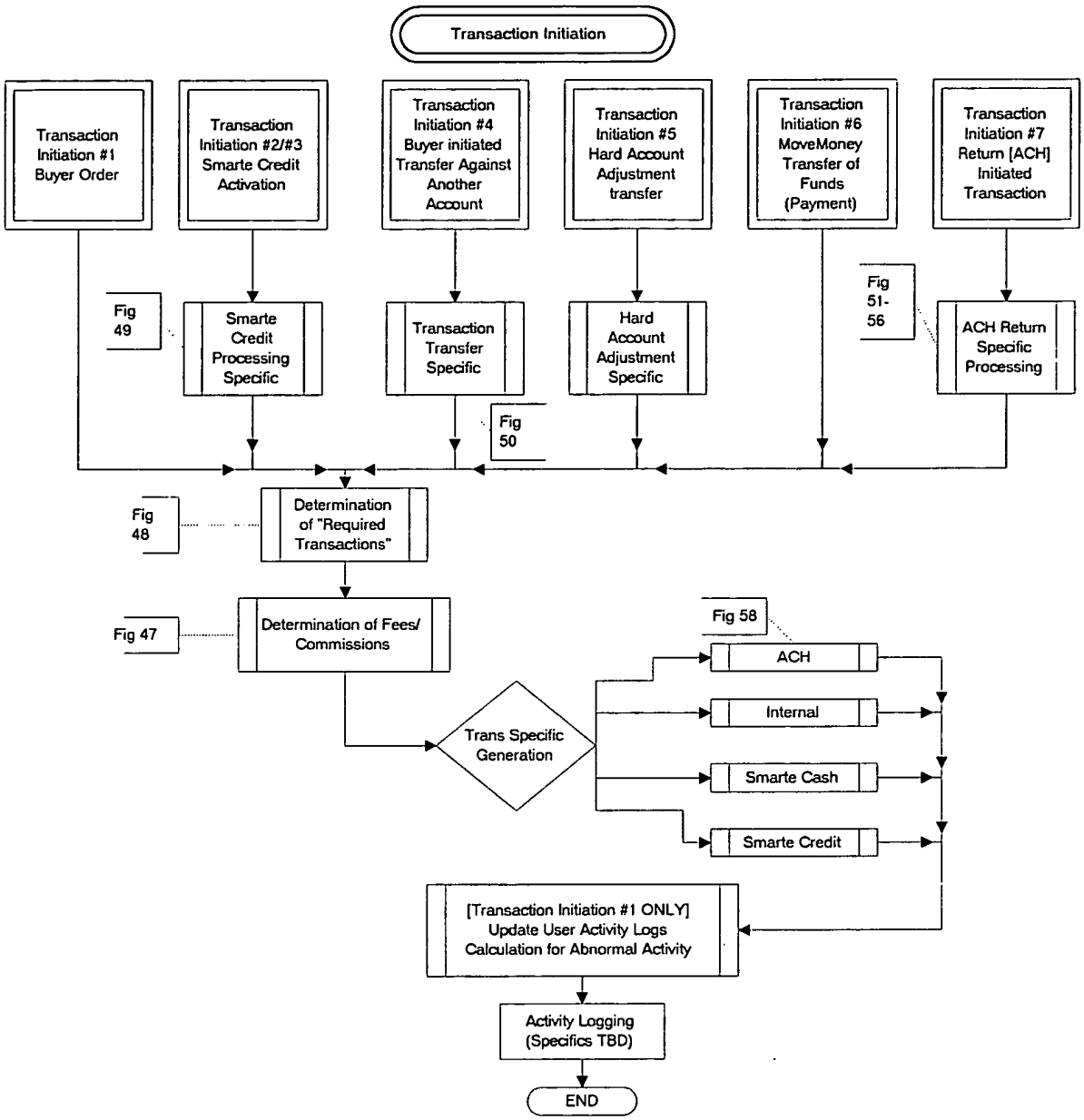
Transaction Initiation
Transaction Initiation #1 Buyer Order
Transaction Initiation #2/#3 Smarte Credit Activation
Transaction Initiation #4 Buyer initiated Transfer Against Another Account
Transaction Initiation #5 Hard Account Adjustment transfer
Transaction Initiation #6 MoveMoney Transfer of Funds (Payment)
Transaction Initiation #7 Return [ACH] Initiated Transaction
Fig 49
Smarte Credit Processing Specific
Transaction Transfer Specific
Fig 50
Hard Account Adjustment Specific
Fig 51-56
ACH Return Specific Processing
Fig 48
Determination of "Required Transactions"
Fig 47
Determination of Fees/ Commissions
Fig 58
Trans Specific Generation
ACH
Internal
Smarte Cash
Smarte Credit
[Transaction Initiation #1 ONLY] Update User Activity Logs Calculation for Abnormal Activity
Activity Logging (Specifics TBD)
END

Fig. 46

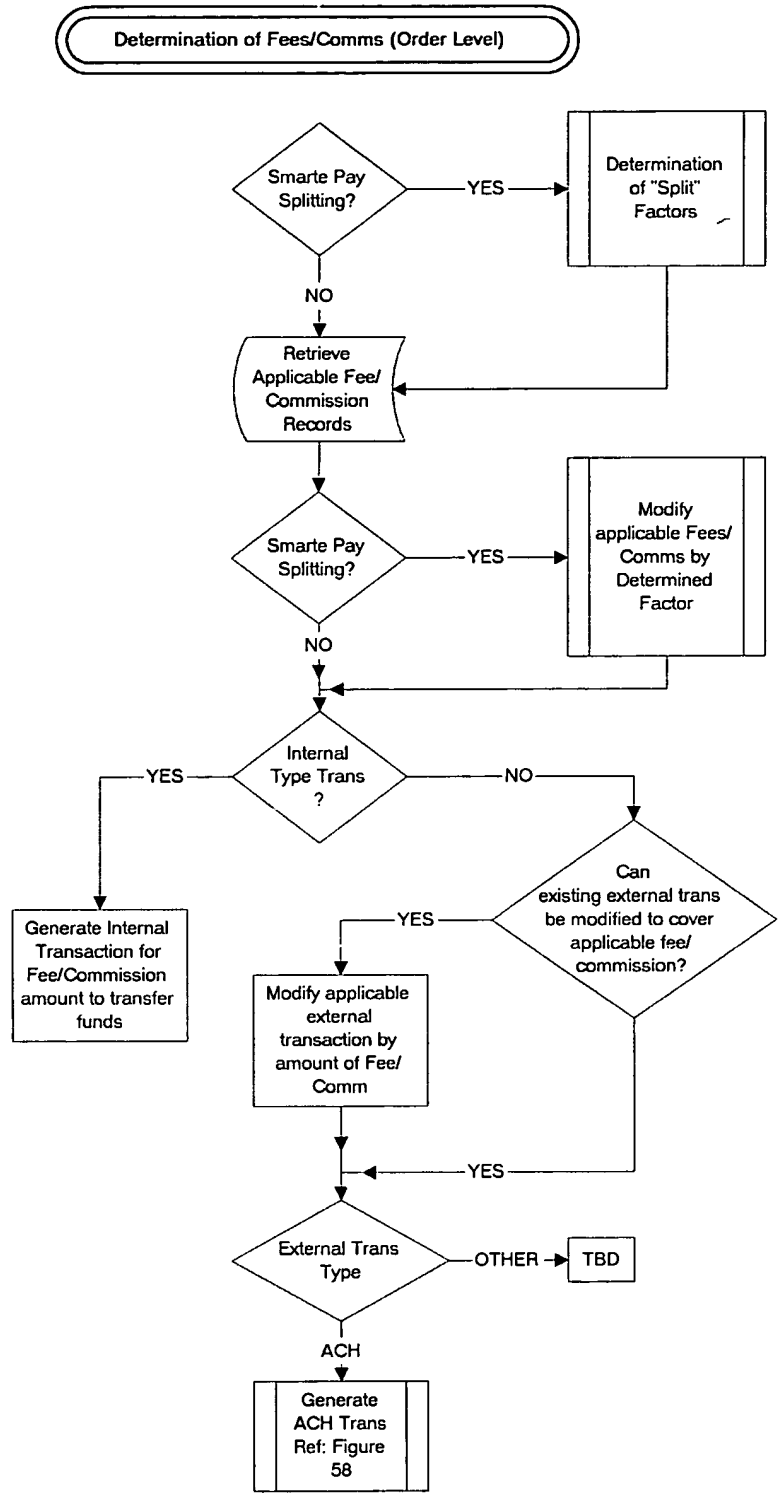
Determination of Fees/Comms (Order Level)
Smarte Pay Splitting?
YES
Determination of "Split" Factors
NO
Retrieve Applicable Fee/ Commission Records
Smarte Pay Splitting?
YES
Modify applicable Fees/ Comms by Determined Factor
NO
Internal Type Trans ?
YES
NO
Generate Internal Transaction for Fee/Commission amount to transfer funds
Can existing external trans be modified to cover applicable fee/ commission?
YES
Modify applicable external transaction by amount of Fee/ Comm
YES
External Trans Type
OTHER
TBD
ACH
Generate ACH Trans Ref: Figure 58

Fig. 47

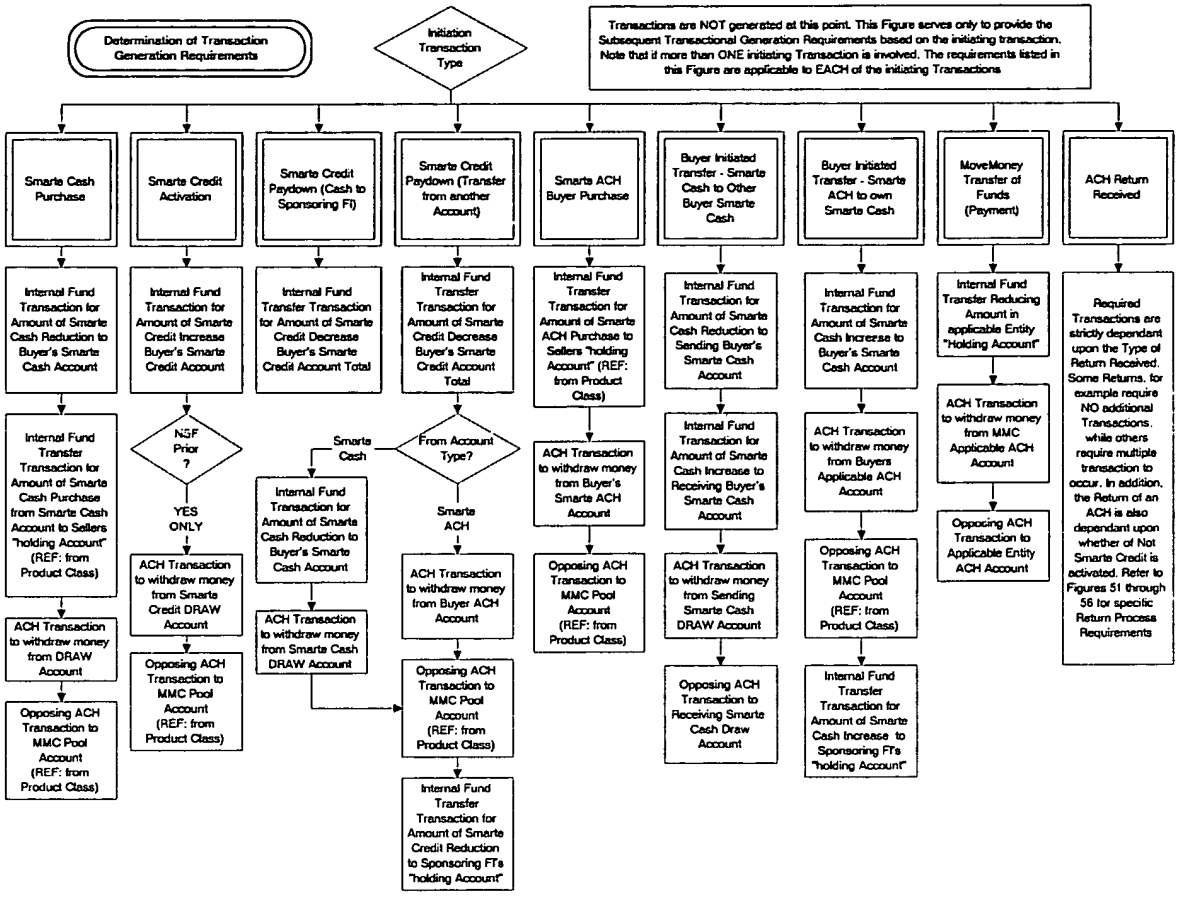
Determination of Transaction Generation Requirements
Initiation Transaction Type
Transactions are NOT generated at this point. This Figure serves only to provide the Subsequent Transactional Generation Requirements based on the initiating transaction. Note that if more than ONE initiating Transaction is involved. The requirements listed in this Figure are applicable to EACH of the initiating Transactions
Smarte Cash Purchase
Smarte Credit Activation
Smarte Credit Paydown (Cash to Sponsoring FI)
Smarte Credit Paydown (Transfer from another Account)
Smarte ACH Buyer Purchase
Buyer Initiated Transfer - Smarte Cash to Other Buyer Smarte Cash
Buyer Initiated Transfer - Smarte ACH to own Smarte Cash
MoveMoney Transfer of Funds (Payment)
ACH Return Received
Internal Fund Transaction for Amount of Smarte Cash Reduction to Buyer's Smarte Cash Account
Internal Fund Transaction for Amount of Smarte Credit Increase Buyer's Smarte Credit Account
Internal Fund Transfer Transaction for Amount of Smarte Credit Decrease Buyer's Smarte Credit Account Total
Internal Fund Transfer Transaction for Amount of Smarte Credit Decrease Buyer's Smarte Credit Account Total
Internal Fund Transfer Transaction for Amount of Smarte ACH Purchase to Sellers "holding Account" (REF: from Product Class)
Internal Fund Transaction for Amount of Smarte Cash Reduction to Sending Buyer's Smarte Cash Account
Internal Fund Transaction for Amount of Smarte Cash Increase to Buyer's Smarte Cash Account
Internal Fund Transfer Reducing Amount in applicable Entity "Holding Account"
Required Transactions are strictly dependant upon the Type of Return Received. Some Returns, for example require NO additional Transactions, while others require multiple transaction to occur. In addition, the Return of an ACH is also dependant upon whether of Not Smarte Credit is activated. Refer to Figures 51 through 56 for specific Return Process Requirements
Internal Fund Transfer Transaction for Amount of Smarte Cash Purchase from Smarte Cash Account to Sellers "holding Account" (REF: from Product Class)
NSF Prior ?
YES ONLY
Smarte Cash
From Account Type?
Smarte ACH
ACH Transaction to withdraw money from Buyer's Smarte ACH Account
Internal Fund Transaction for Amount of Smarte Cash Increase to Receiving Buyer's Smarte Cash Account
ACH Transaction to withdraw money from Buyers Applicable ACH Account
ACH Transaction to withdraw money from MMC Applicable ACH Account
ACH Transaction to withdraw money from DRAW Account
ACH Transaction to withdraw money from Smarte Credit DRAW Account
Internal Fund Transaction for Amount of Smarte Cash Reduction to Buyer's Smarte Cash Account
ACH Transaction to withdraw money from Buyer ACH Account
ACH Transaction to withdraw money from Sending Smarte Cash DRAW Account
Opposing ACH Transaction to MMC Pool Account (REF: from Product Class)
Opposing ACH Transaction to MMC Pool Account (REF: from Product Class)
Opposing ACH Transaction to MMC Pool Account (REF: from Product Class)
Opposing ACH Transaction to MMC Pool Account (REF: from Product Class)
Opposing ACH Transaction to MMC Pool Account (REF: from Product Class)
Opposing ACH Transaction to Applicable Entity ACH Account
ACH Transaction to withdraw money from Smarte Cash DRAW Account
Opposing ACH Transaction to Receiving Smarte Cash Draw Account
Internal Fund Transfer Transaction for Amount of Smarte Credit Reduction to Sponsoring FI's "holding Account"
Internal Fund Transfer Transaction for Amount of Smarte Cash Increase to Sponsoring FI's "holding Account"

Fig. 48

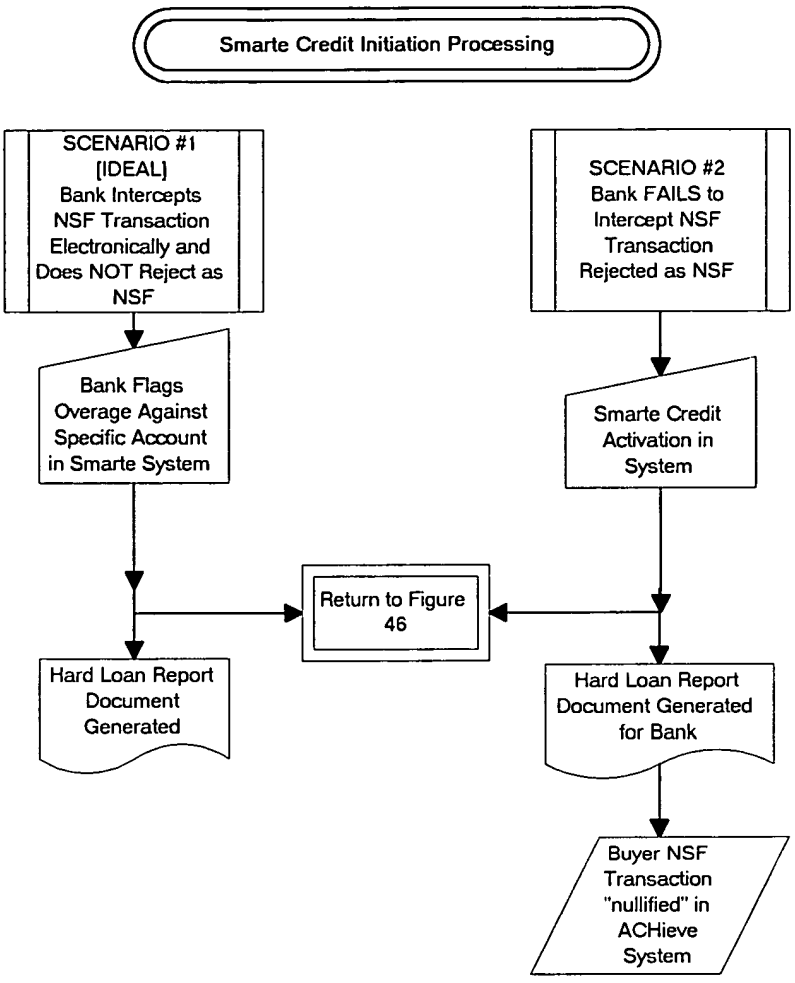
Smarte Credit Initiation Processing
SCENARIO #1 [IDEAL] Bank Intercepts NSF Transaction Electronically and Does NOT Reject as NSF
SCENARIO #2 Bank FAILS to Intercept NSF Transaction Rejected as NSF
Bank Flags Overage Against Specific Account in Smarte System
Smarte Credit Activation in System
Return to Figure 46
Hard Loan Report Document Generated
Hard Loan Report Document Generated for Bank
Buyer NSF Transaction "nullified" in ACHieve System

Fig. 49

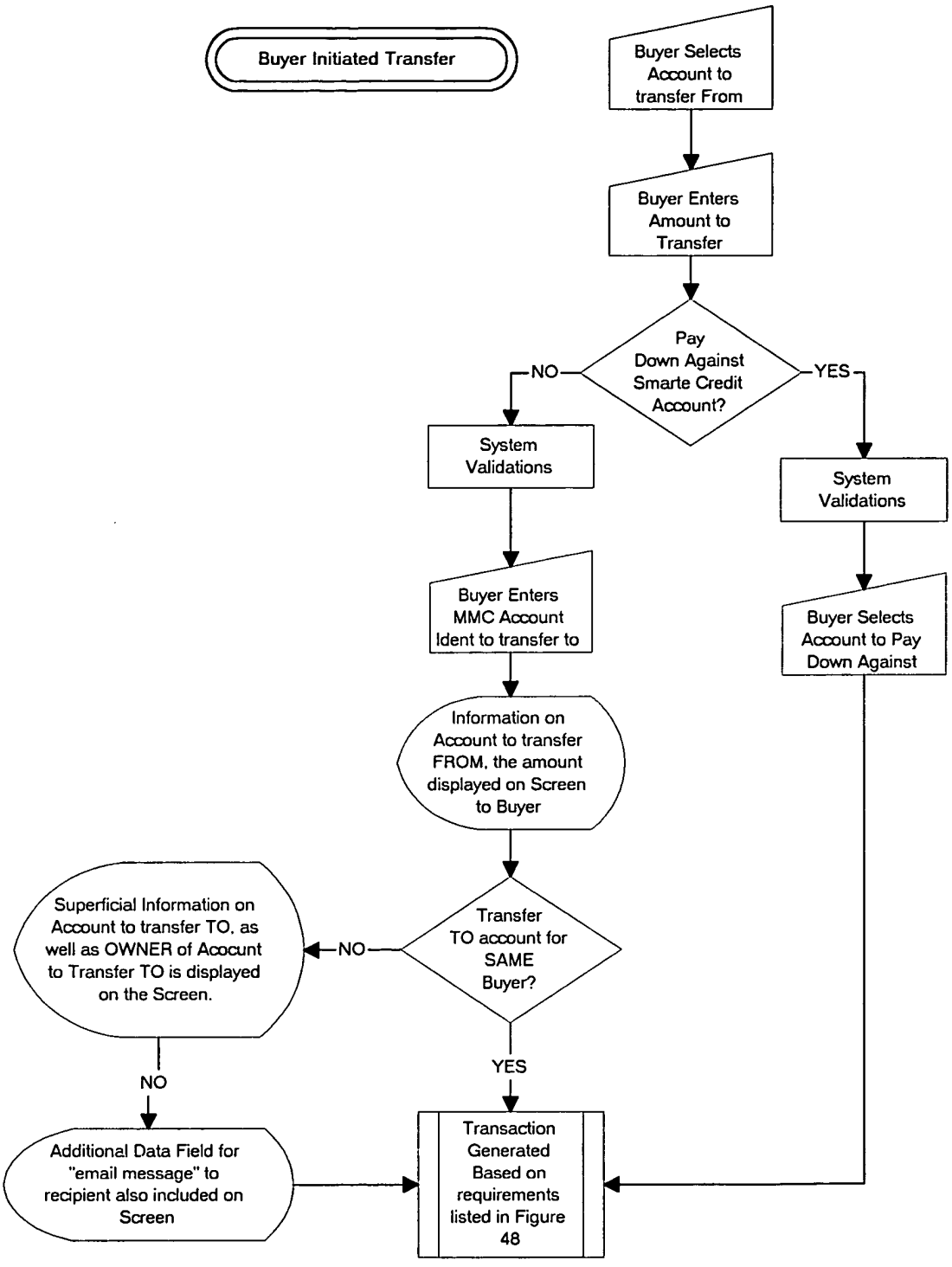
Buyer Initiated Transfer
Buyer Selects Account to transfer From
Buyer Enters Amount to Transfer
Pay Down Against Smarte Credit Account?
NO
YES
System Validations
System Validations
Buyer Enters MMC Account Ident to transfer to
Buyer Selects Account to Pay Down Against
Information on Account to transfer FROM, the amount displayed on Screen to Buyer
Transfer TO account for SAME Buyer?
NO
Superficial Information on Account to transfer TO, as well as OWNER of Acocunt to Transfer TO is displayed on the Screen.
YES
NO
Additional Data Field for "email message" to recipient also included on Screen
Transaction Generated Based on requirements listed in Figure 48

Fig. 50

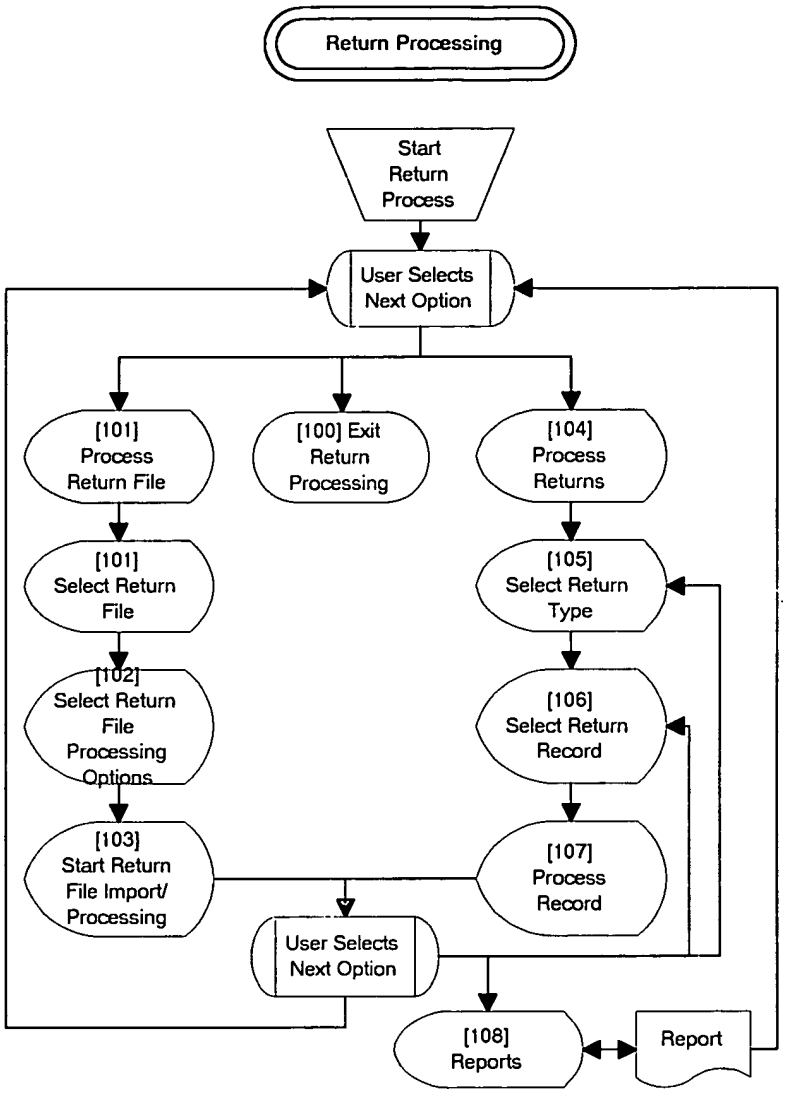
Return Processing
Start Return Process
User Selects Next Option
[101] Process Return File
[100] Exit Return Processing
[104] Process Returns
[101] Select Return File
[105] Select Return Type
[102] Select Return File Processing Options
[106] Select Return Record
[103] Start Return File Import/ Processing
[107] Process Record
User Selects Next Option
[108] Reports
Report

Fig. 51

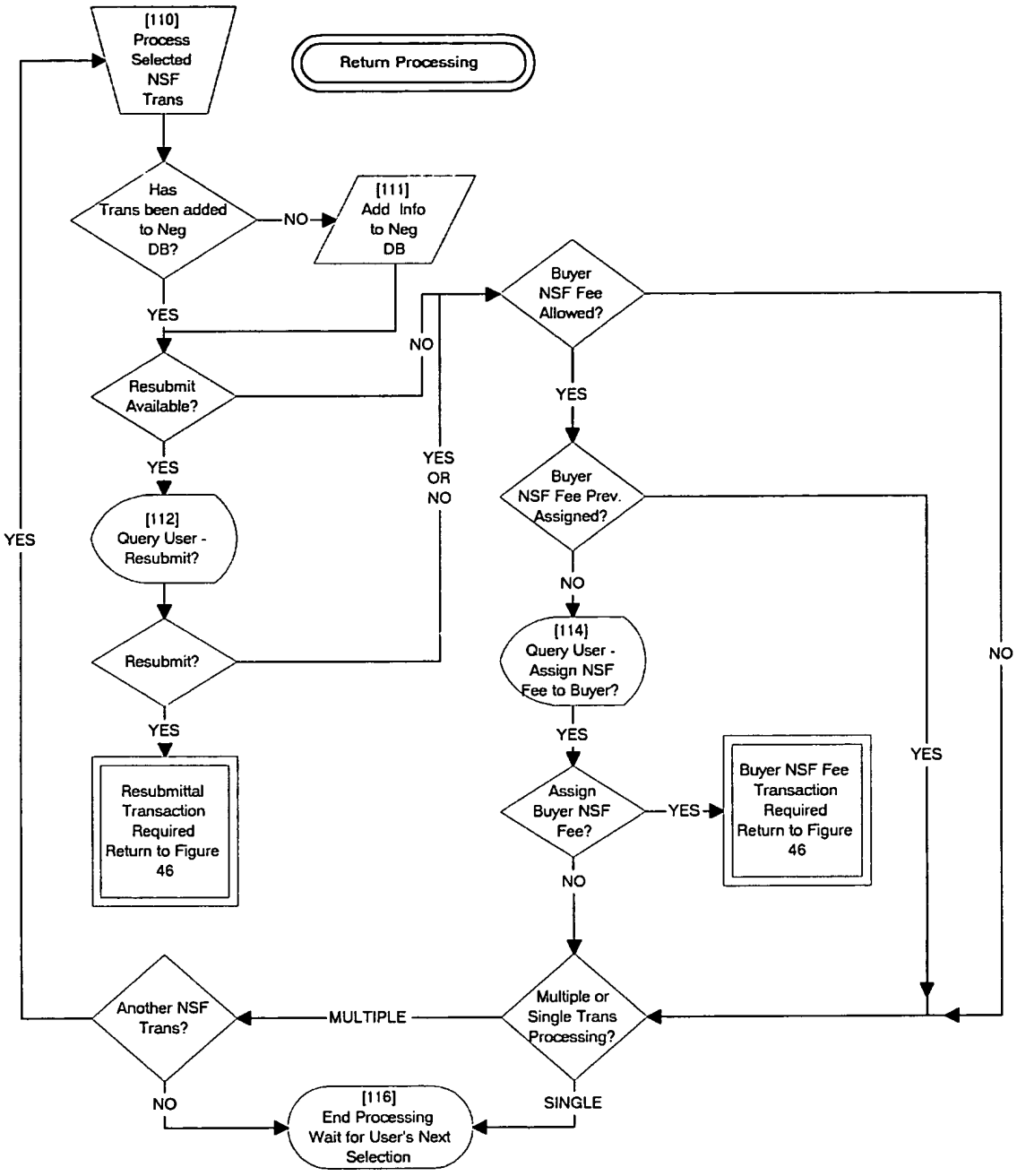
[110] Process Selected NSF Trans
Return Processing
Has Trans been added to Neg DB?
NO
[111] Add Info to Neg DB
YES
Resubmit Available?
NO
YES
[112] Query User - Resubmit?
YES
YES OR NO
Resubmit?
YES
Resubmittal Transaction Required Return to Figure 46
Buyer NSF Fee Allowed?
YES
Buyer NSF Fee Prev. Assigned?
NO
[114] Query User - Assign NSF Fee to Buyer?
YES
Assign Buyer NSF Fee?
YES
Buyer NSF Fee Transaction Required Return to Figure 46
NO
NO
YES
Multiple or Single Trans Processing?
MULTIPLE
Another NSF Trans?
YES
NO
SINGLE
[116] End Processing Wait for User's Next Selection

Fig. 52

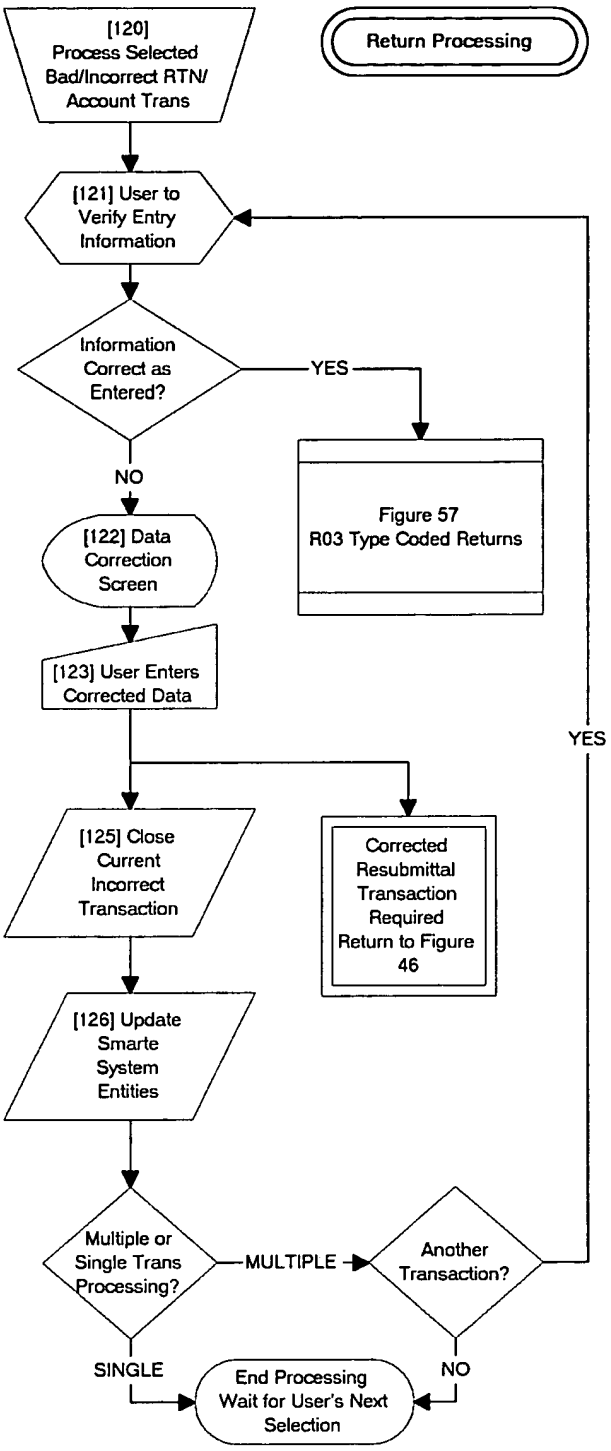
[120] Process Selected Bad/Incorrect RTN/ Account Trans
Return Processing
[121] User to Verify Entry Information
Information Correct as Entered?
YES
NO
Figure 57 R03 Type Coded Returns
[122] Data Correction Screen
[123] User Enters Corrected Data
YES
[125] Close Current Incorrect Transaction
Corrected Resubmittal Transaction Required Return to Figure 46
[126] Update Smarte System Entities
Multiple or Single Trans Processing?
MULTIPLE
Another Transaction?
SINGLE
NO
End Processing Wait for User's Next Selection

Fig. 53

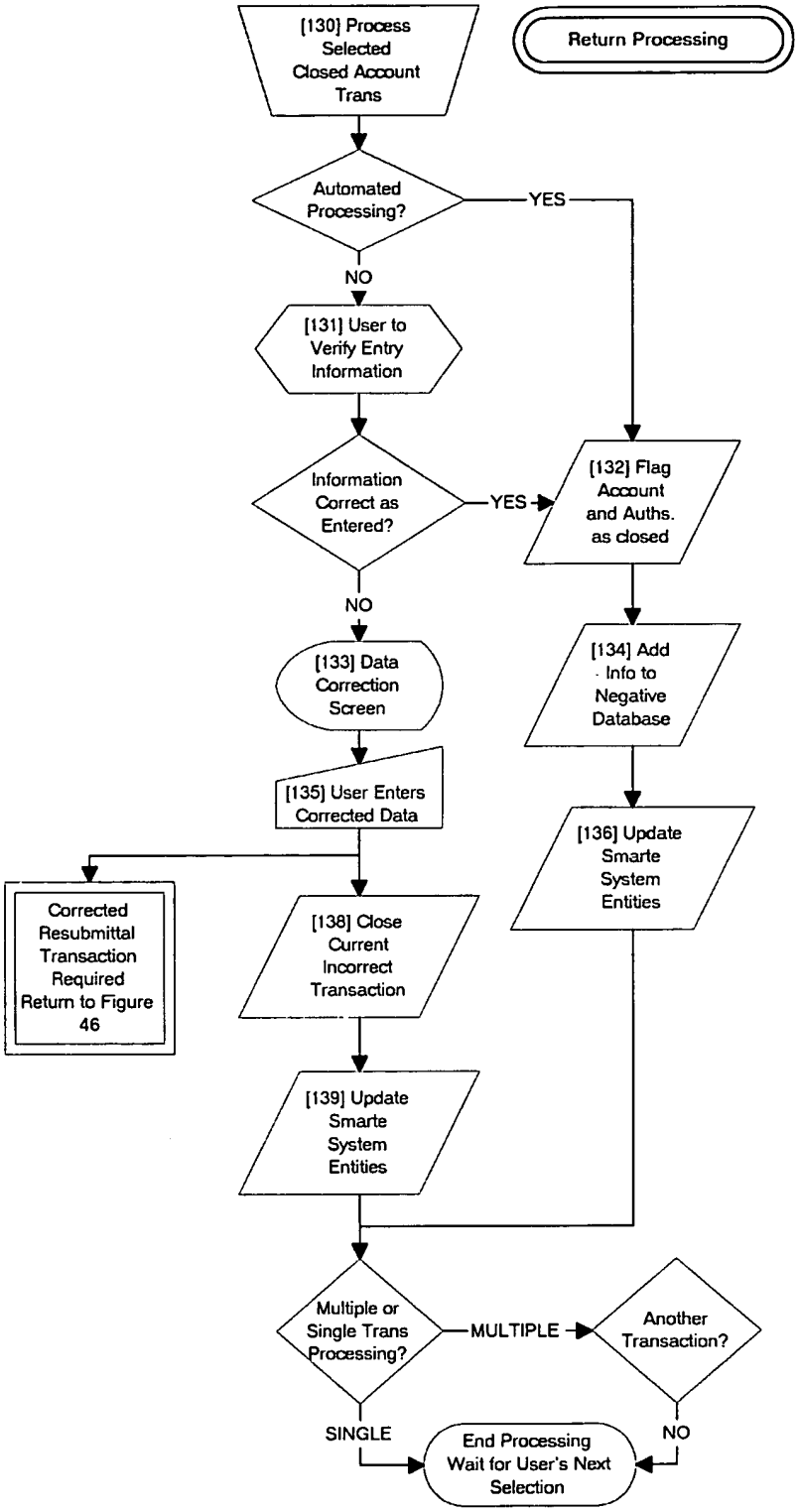
[130] Process Selected Closed Account Trans
Return Processing
Automated Processing?
YES
NO
[131] User to Verify Entry Information
Information Correct as Entered?
YES
[132] Flag Account and Auths. as closed
NO
[133] Data Correction Screen
[134] Add Info to Negative Database
[135] User Enters Corrected Data
[136] Update Smarte System Entities
Corrected Resubmittal Transaction Required Return to Figure 46
[138] Close Current Incorrect Transaction
[139] Update Smarte System Entities
Multiple or Single Trans Processing?
MULTIPLE
Another Transaction?
SINGLE
NO
End Processing Wait for User's Next Selection

Fig. 54

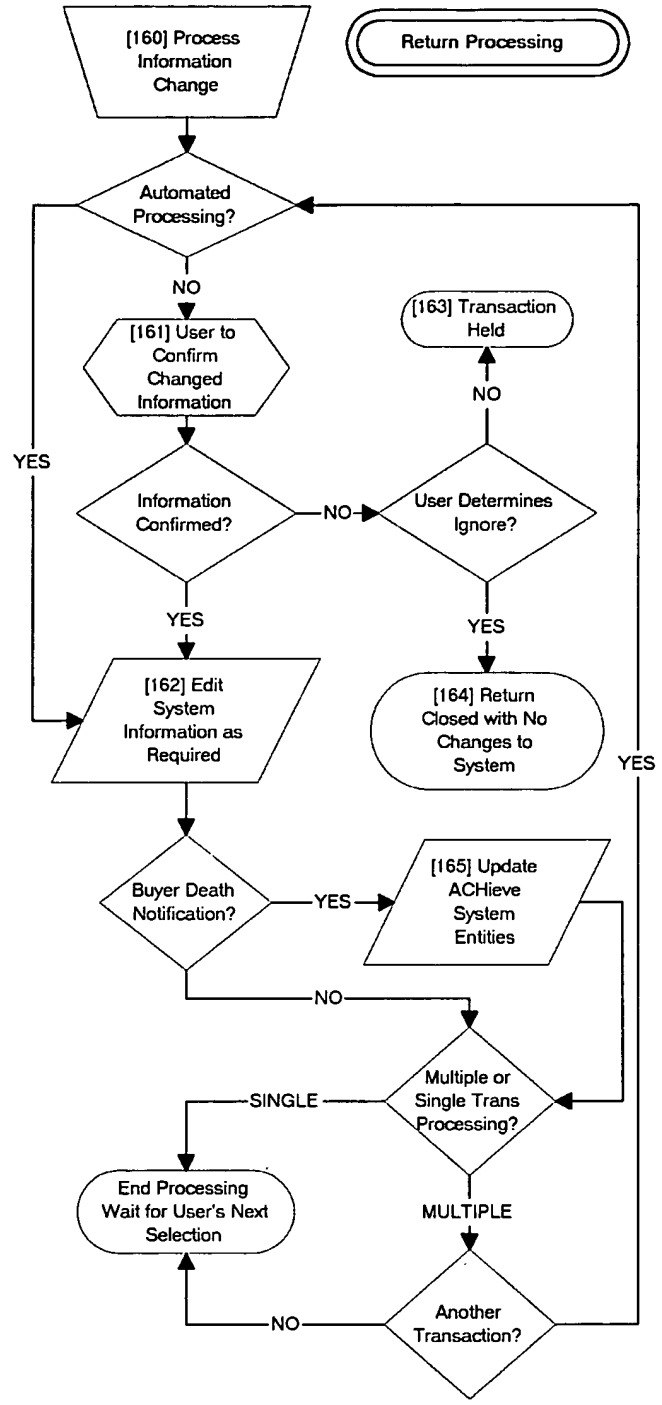
[160] Process Information Change
Return Processing
Automated Processing?
NO
YES
[161] User to Confirm Changed Information
Information Confirmed?
NO
YES
[162] Edit System Information as Required
[163] Transaction Held
NO
User Determines Ignore?
YES
[164] Return Closed with No Changes to System
YES
Buyer Death Notification?
YES
[165] Update ACHieve System Entities
NO
Multiple or Single Trans Processing?
SINGLE
MULTIPLE
End Processing Wait for User's Next Selection
Another Transaction?
NO
YES

Fig. 55

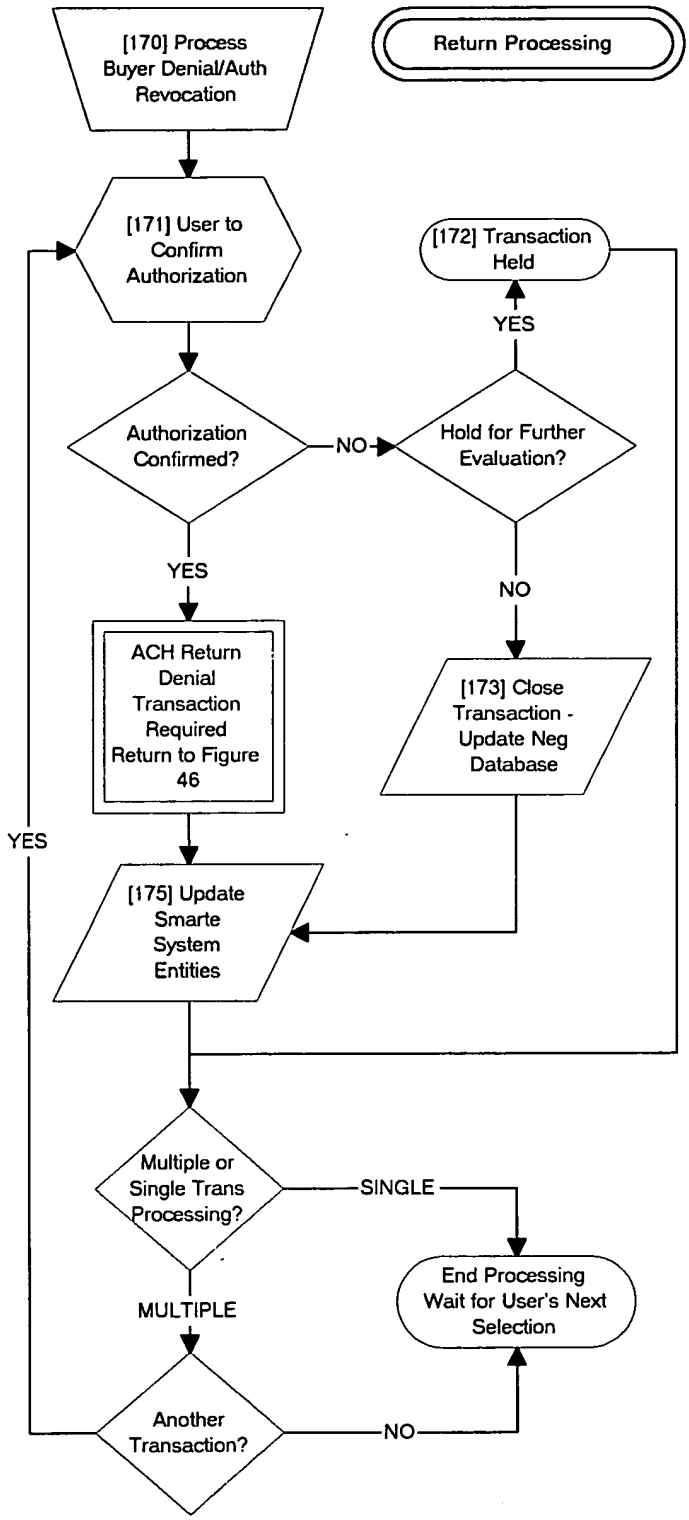
[170] Process Buyer Denial/Auth Revocation
Return Processing
[171] User to Confirm Authorization
[172] Transaction Held
YES
Authorization Confirmed?
NO
Hold for Further Evaluation?
YES
NO
ACH Return Denial Transaction Required Return to Figure 46
[173] Close Transaction - Update Neg Database
YES
[175] Update Smarte System Entities
Multiple or Single Trans Processing?
SINGLE
End Processing Wait for User's Next Selection
MULTIPLE
Another Transaction?
NO

Fig. 56

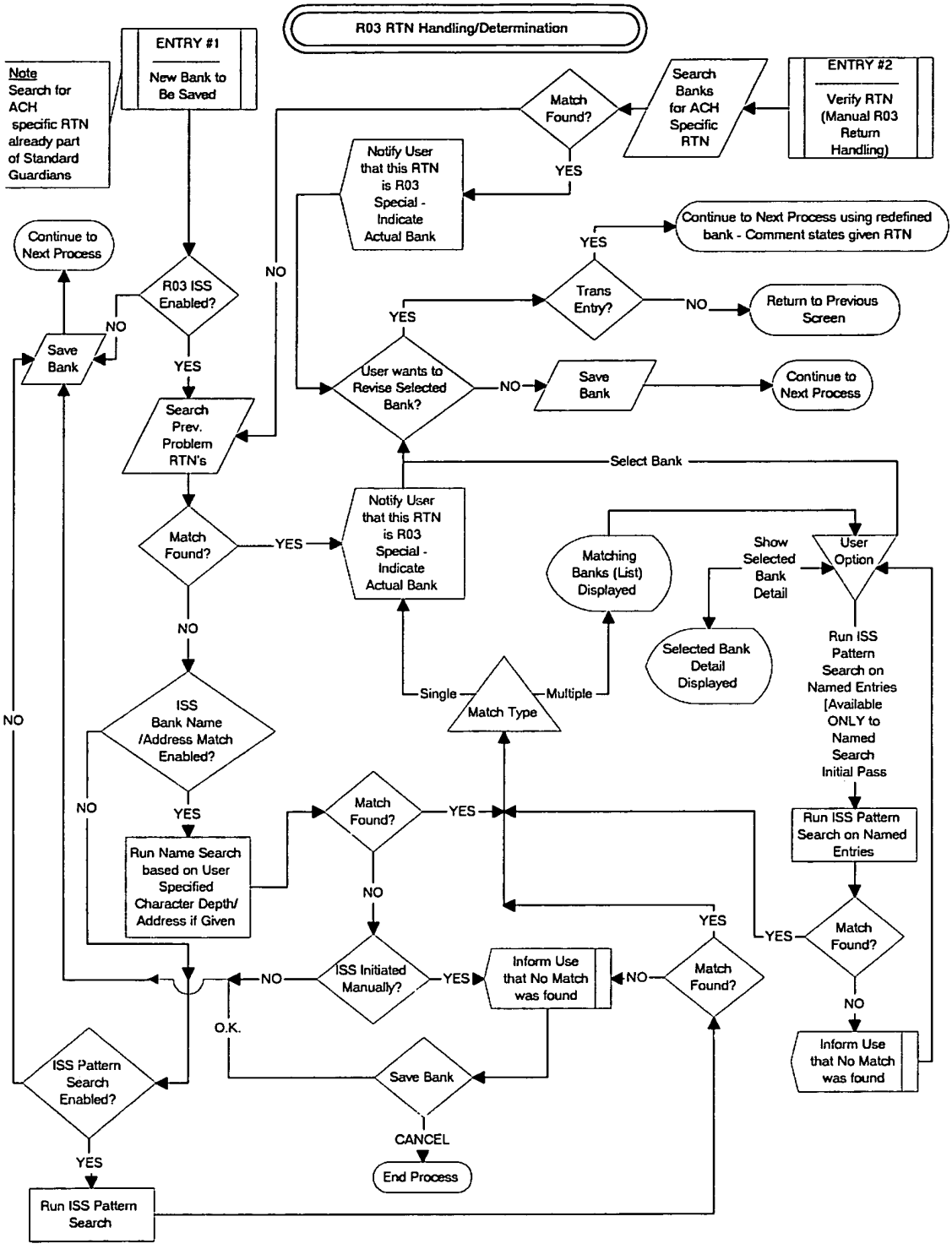
R03 RTN Handling/Determination
ENTRY #1
New Bank to Be Saved
Note
Search for ACH specific RTN already part of Standard Guardians
ENTRY #2
Verify RTN (Manual R03 Return Handling)
Search Banks for ACH Specific RTN
Match Found?
NO
YES
Notify User that this RTN is R03 Special - Indicate Actual Bank
Continue to Next Process using redefined bank - Comment states given RTN
Continue to Next Process
R03 ISS Enabled?
Trans Entry?
Return to Previous Screen
Save Bank
User wants to Revise Selected Bank?
Continue to Next Process
Search Prev. Problem RTN's
Select Bank
Notify User that this RTN is R03 Special - Indicate Actual Bank
Matching Banks (List) Displayed
Show Selected Bank Detail
User Option
Selected Bank Detail Displayed
Run ISS Pattern Search on Named Entries [Available ONLY to Named Search Initial Pass
Single
Multiple
Match Type
ISS Bank Name /Address Match Enabled?
Run Name Search based on User Specified Character Depth/ Address if Given
Run ISS Pattern Search on Named Entries
ISS Initiated Manually?
Inform Use that No Match was found
O.K.
ISS Pattern Search Enabled?
Save Bank
CANCEL
End Process
Run ISS Pattern Search

Fig. 57

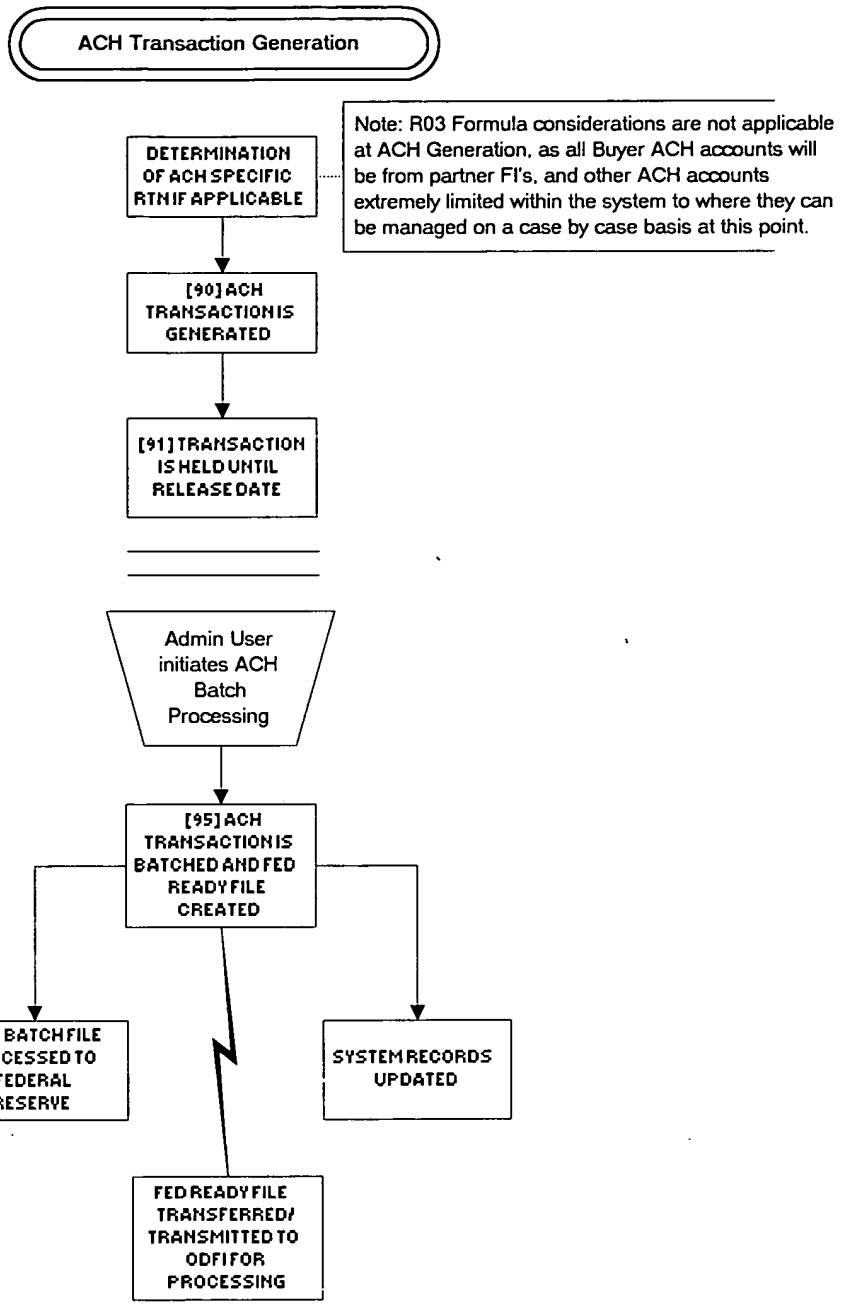

Fig. 58

4825826-1

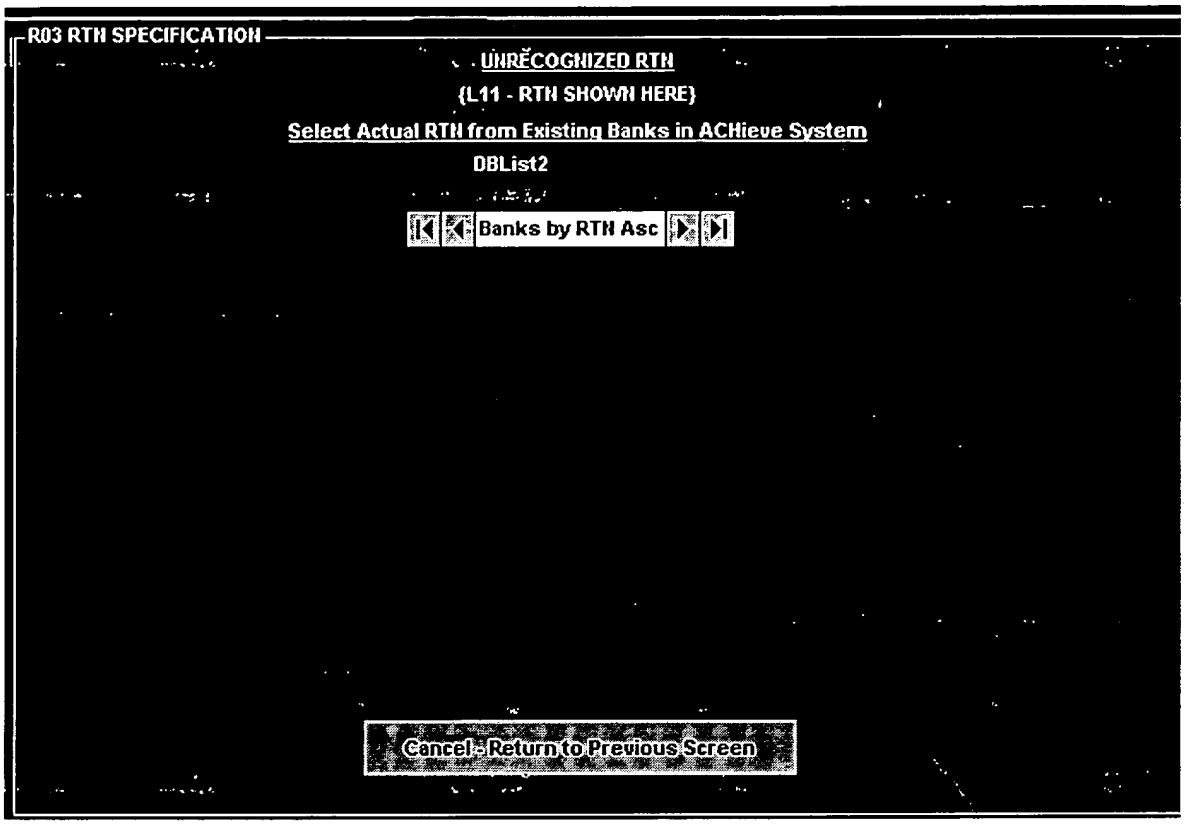

Fig. 59

FP03-0015-00

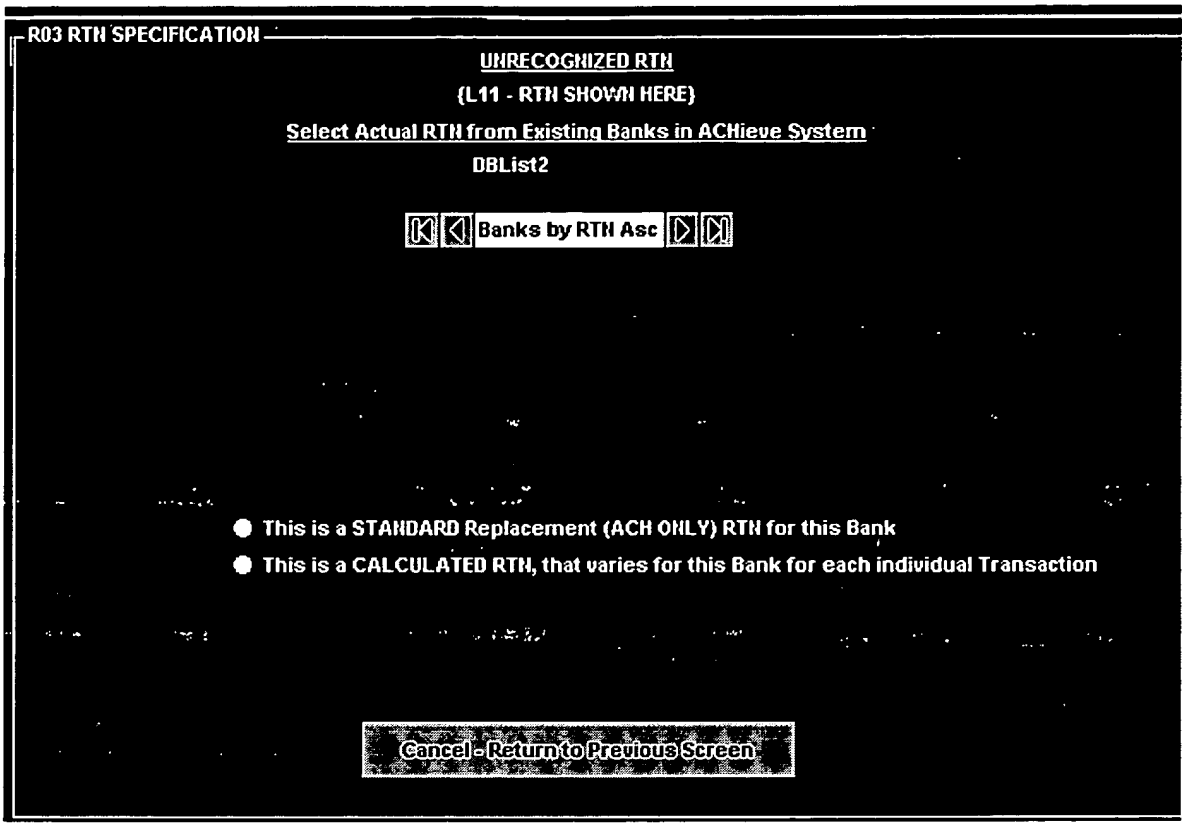

Fig. 60

Patent Application Publication

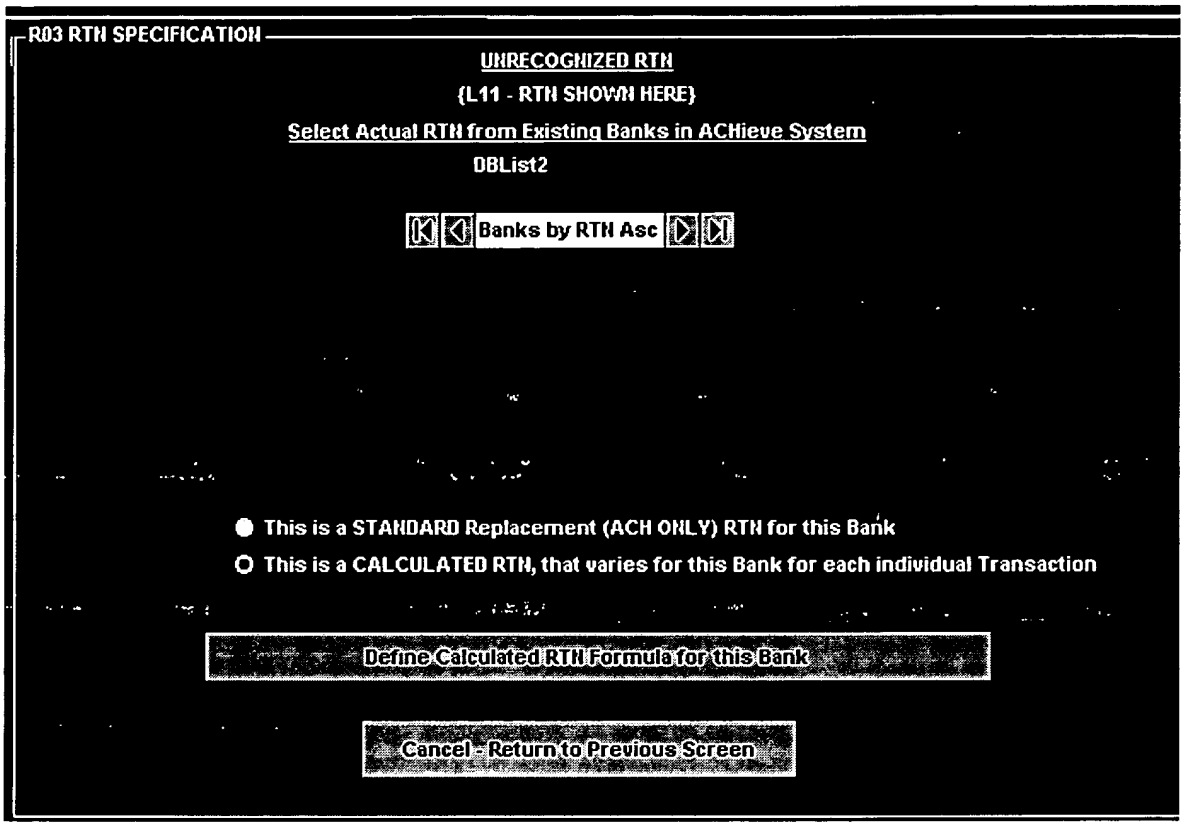

Fig. 61

Exhibit 1004 - Page 0050

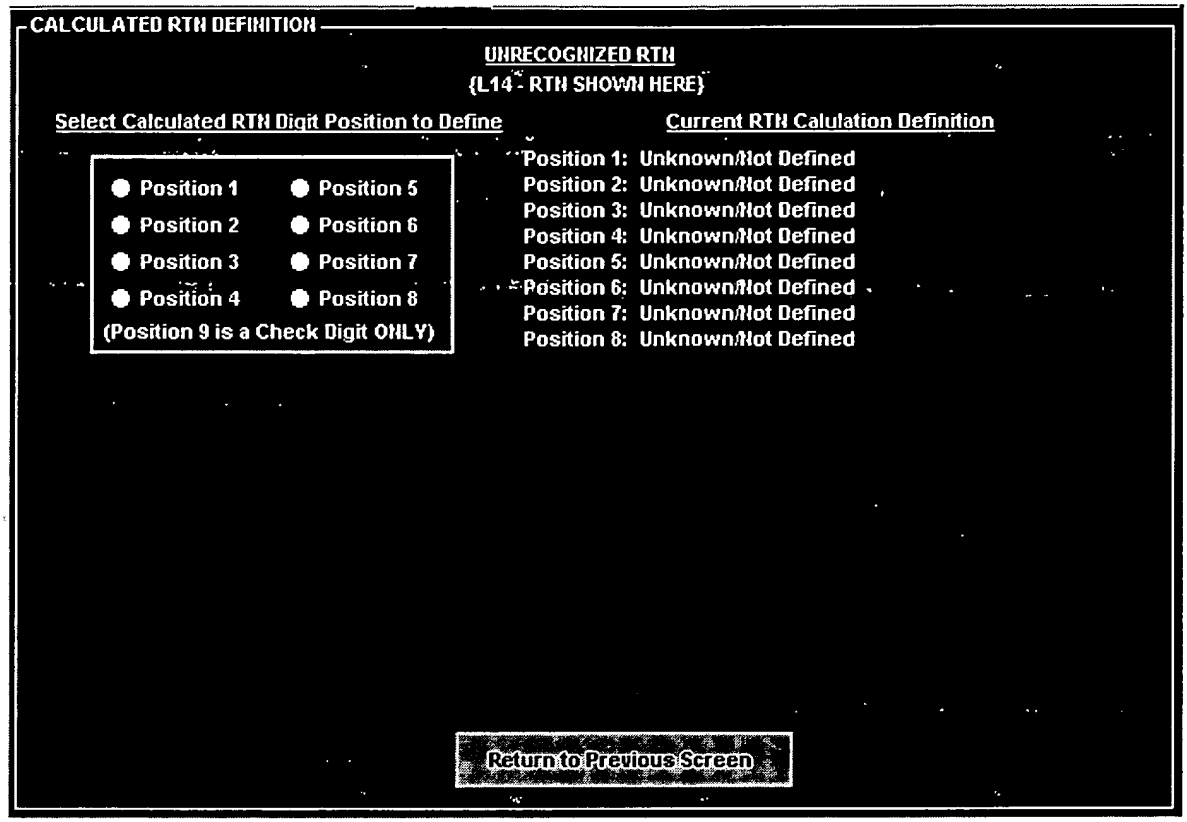

Fig. 62

EFS Web 2.2.4 built on 2009-04-09

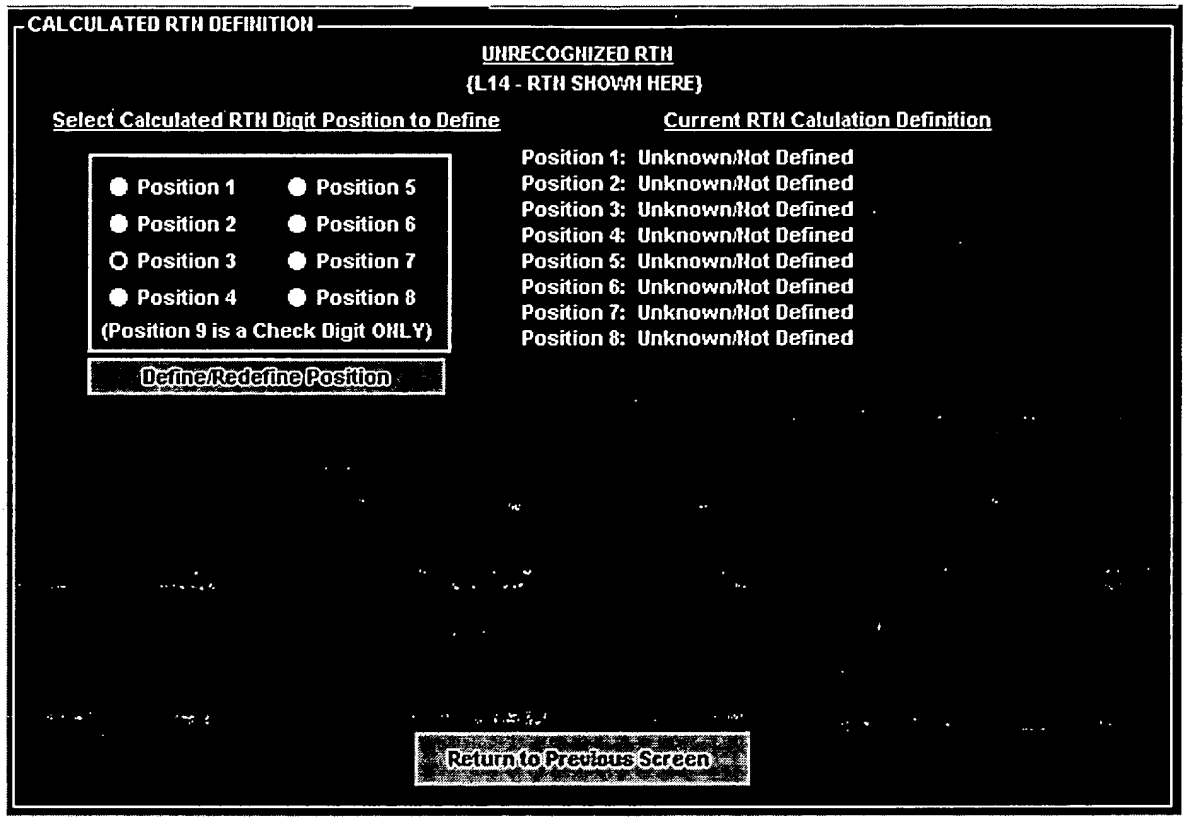

Fig. 63

EPO - DG 4 - 25.05.2009

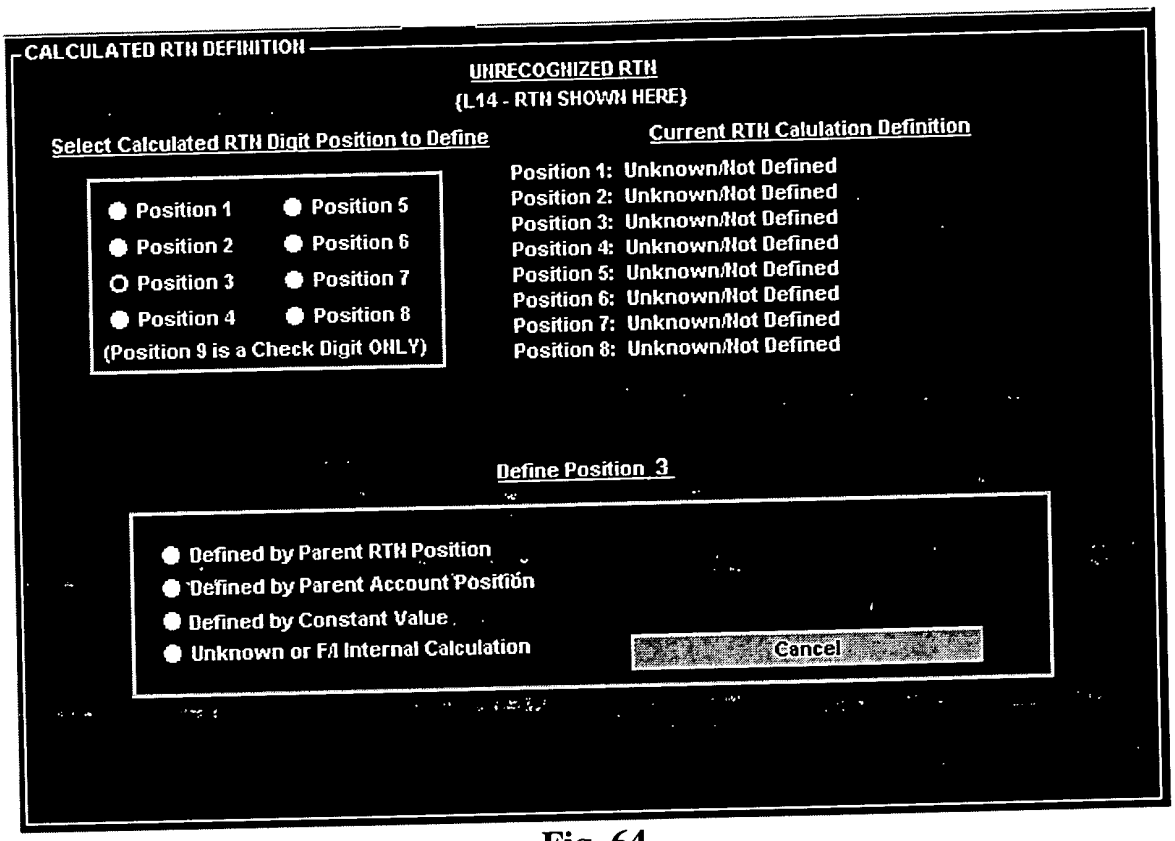

Fig. 64

EFS ID: 4250656

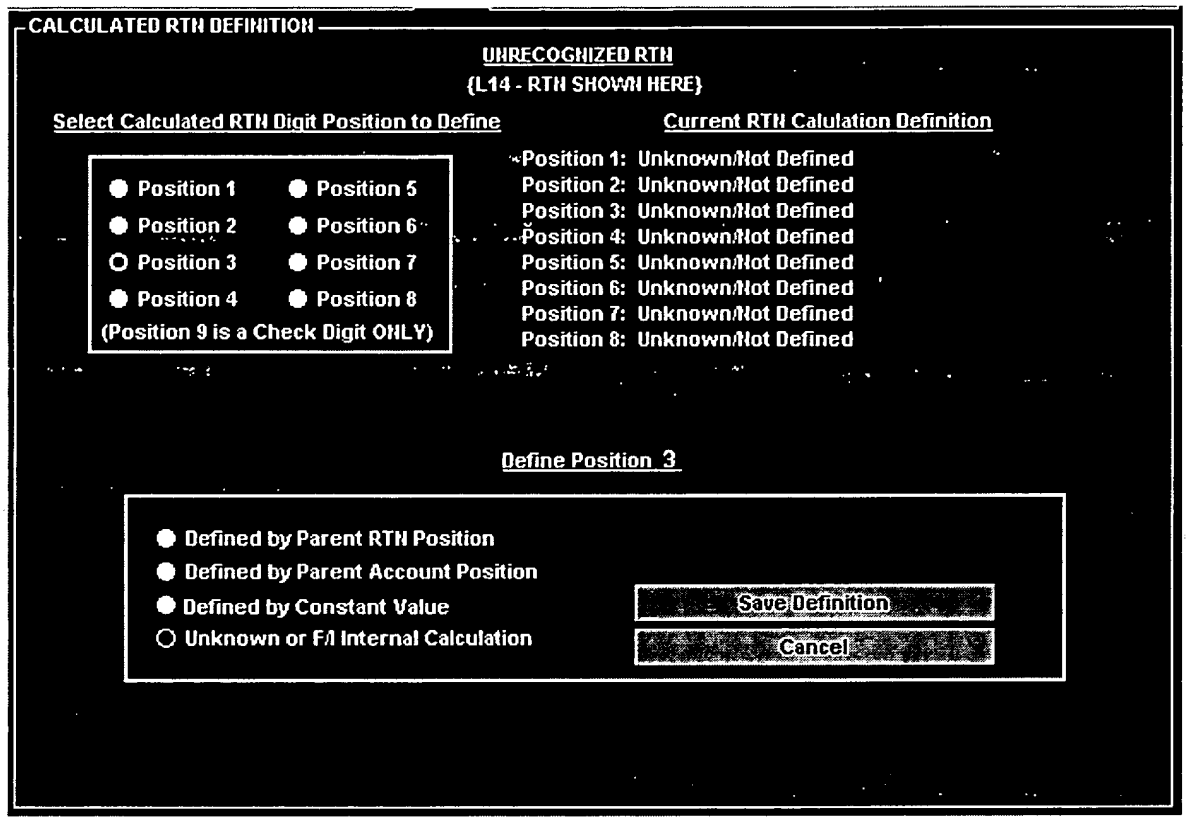

Fig. 66

4205450.1

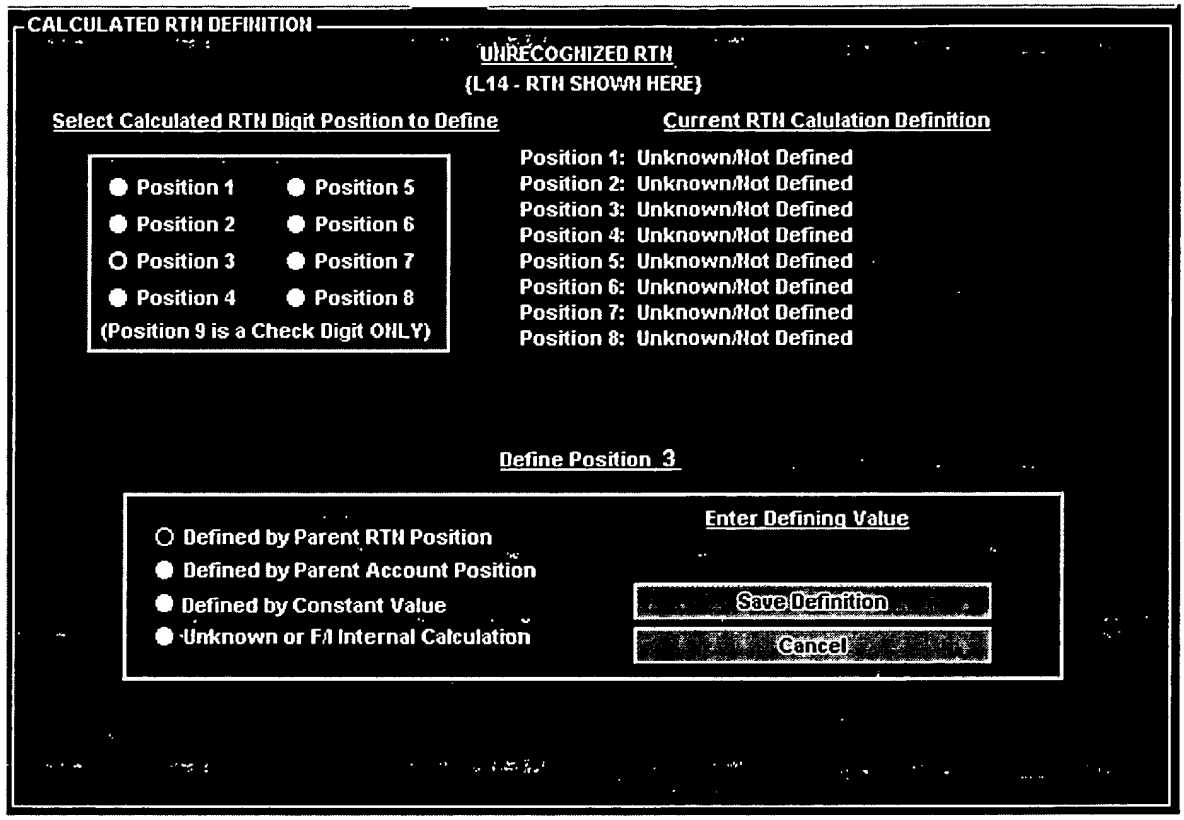

Fig. 67

4202405260

CRITICAL ACTIVITY CALCULATION VALUES			
FIELD NAME	**TYPE**	**LEN**	**DESCRIPTION**
AVGNOFBUYS	DOUBLE	---	AVG # OF BUYS PER ACTIVE DAY (ACTIVE ONLY)
AVGNOFWBUYS	DOUBLE	---	AVG # OF BUYS PER ACTIVE WEEK (ACTIVE ONLY)
TOTBUYS	LONG	---	TOTAL # OF BUYS
TOTACTBUYS	CURRENCY	---	TOTAL AMOUNT OF BUYS TO DATE
AVGNOFBUYA	CURRENCY	---	AVG TOTAL AMOUNT OF BUYS PER DAY (ACTIVE ONLY)
AVGNOFWBUYA	CURRENCY	---	AVG TOTAL AMOUNT OF BUYS PER WEEK (ACTIVE ONLY)
TDTOTENTSBY	INTEGER	---	TOTAL NUMBER OF BUYS FOR CALC DATE
TDTOTENTSBYD	CURRENCY	---	TOTAL AMOUNT OF BUYS FOR CALC DATE
TWTOTENTSBY	INTEGER	---	TOTAL NUMBER OF BUYS FOR CALC DATE WEEK
TWTOTENTSBYD	CURRENCY	---	TOTAL AMOUNT OF BUYS FOR CALC DATE WEEK
TOTBDS	LONG	---	TOTAL NUMBER OF ACTIVE BUY DAYS
TOTBWS	LONG	---	TOTAL NUMBER OF ACTIVE BUY WEEKS
CALCDATE	DATE	---	CURRENT CALCULATION DATE
CALCDATEW	DATE	---	CURRENT CALCULATION DATE (for week calculations)
DEVDTRGGRB	DOUBLE	---	DAILY DEVIATION % AT WHICH BUYER IS WARNED (SELF SET BY BUYER) – PARENT BUYERS ALSO NOTIFIED
DEVDTRGGRW	DOUBLE	---	DAILY DEVIATION % AT WHICH MMC/APPLICABLE BANK IS NOTIFIED (IF TRIGGER SET) OF ABNORMAL ACTIVITY. BUYER/PARENT BUYER ALSO WARNED
DEVDTRGGRS	DOUBLE	---	DAILY DEVIATION % AT WHICH BUYER ACCOUNT IS SUSPENDED PENDING VERIFICATION OF - METHOD: TBD
DEVWTRGGRB	DOUBLE	---	WEEKLY DEVIATION % AT WHICH BUYER IS WARNED (SELF SET BY BUYER) – PARENT BUYERS ALSO NOTIFIED
DEVWTRGGRW	DOUBLE	---	WEEKLY DEVIATION % AT WHICH MMC/APPLICABLE BANK IS NOTIFIED (IF TRIGGER SET) OF ABNORMAL ACTIVITY. BUYER/PARENT BUYER ALSO WARNED
DEVWTRGGRS	DOUBLE	---	WEEKLY DEVIATION % AT WHICH BUYER ACCOUNT IS SUSPENDED PENDING VERIFICATION OF - METHOD: TBD

Fig. 68

EP 2 374 094 A1

Accounts Type Specific – Smarte Credit
Table Name : MMC_ACC_SMARTE_CREDIT

MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID
MMC_ID	VARCHAR(20)	NN	MMC_ID of user
MMC_FI_HOLD_ACC_ID	VARCHAR(20)	NN	Holding Account of FI in MMC. (Admin Account of FI)
MMC_ACH_ACC_ID	VARCHAR(20)		ACH Account ID tied to the MMC_ACC_ID
MMC_SPON_FI _ID	VARCHAR(20)		MMC Account ID of the Sponsoring FI
NEXT_LOAN_NUM	INT		Latest Loan Number
TOTAL_AMT	MONEY	NN	Total Amount of Smarte Credit extended by Bank Against this Account
CUR_BAL	MONEY	NN	Current Balance
BLOCKED_AMOUNT	MONEY		Blocked Amount
INT_CAL_DELAY	INT		Number of Days to delay Calculation of Interest
INT_RATE	FLOAT	NN	Default Interest Rate
ACT_FEE_CHARGE	MONEY		Fees / Charge for Activation
TAX_YEAR	INT		Four Digit Calendar Year. – Indicates current year for which interest calculations are being maintained
INT_PAID_CUR_YEAR	MONEY	NN	Total Amount of Interest Paid during Current Calendar Year
INT_PAID_PREV_YEAR	MONEY	NN	Total Amount of Interest Paid during Previous Calendar Years
PAY_DUE_DATE	INT	NN	Day of Month Payment Due
MIN_INT_CHARGE	MONEY		Minimum Interest Charge Allowed
MIN_MON_AMT_DUE	MONEY		Minimum Monthly Amount Due
DEF_PER_BAL_DUE	FLOAT		Default Percentage for Total Balance Due
FI_ACC_REF	VARCHAR(50)		FI Internal Reference for Account
PER_LATE_FEE	FLOAT		Percentage of Balance to Calculate Late Fee from
FLAT_RATE_LATE_FEE	MONEY		Flat Rate to Calculate Late Fee
MAX_FLAT_LATE_FEE	MONEY		Maximum Flat Rate to Calculate Late Fee
WAIVE_NSF_FEE	CHAR(1)		Yes / No
FI_COMMENTS	VARCHAR(500)		Comments entered by FI
STATUS	CHAR(1)		Status
NEXT_PAY_DUE_DATE	DATE/TIME		This is the NEXT calculated date that Payment is Due By.
NEXT_PAYDUE_AMOUNT	MONEY		This is the Amount (Current Balance) remaining on minimum amount remaining for Buyer to Pay on this Account prior to NEXT_PAY_DUE_DATE
LFC_CARRYOVER_BAL	MONEY		This is the amount remaining for the Buyer to Pay during this specific pay period.
LFC_YEAR	INT		This is the current Calculation YEAR for Late Payments
LF_PAID_CUR_YEAR	MONEY	NN	Total Amount of Late Payments Paid during Current Calendar Year
LF_PAID_PREV_YEAR	MONEY	NN	Total Amount of Late Payments Paid during Previous Calendar Years

Fig. 69

Transaction – Smarte Credit Loan Record
Table Name : MMC_TRAN_SMARTE_CREDIT_LOAN

MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID (Smarte Credit Account Only)
MMC_ACC_LOAN_ID	VARCHAR(23)		Concatenation of Smarte Credit Account ID and Next Loan Number (Padded with zeros) of activation no (000-999).
NEXT_PAY_NUM	INT		Next Sequential Payment Number to Use within Payment Log Data Table
CUR_BAL	MONEY	NN	Current Balance
NEXT_INT_CAL_DATE	DATETIME		Next Interest Calculation Date
LAST_INT_CAL_DATE	DATETIME		Last Date Interest Calculated
ORG_INT_RATE	FLOAT	NN	Original - Monthly Interest Rate
CUR_INT_RATE	FLOAT	NN	Current - Monthly Interest Rate
LOAN_ACTIVATE_DATE	DATETIME		Loan Activated Date
FI_LOAN_REF	VARCHAR(50)		Individual FI's Reference Number for this Loan
TOT_INT_CHARGED	MONEY		Total Interest Charged to Date against this Loan
ORG_LOAN_AMT	MONEY	NN	Original Loan Amount
LOAN_BALANCE	MONEY		
LAST_INT_CHARGED	MONEY		Interest Charged in Last Calculation Period
ACT_FEE_CHARGED	MONEY	NN	Fee Added to Balance for Activation
LOCKED_INT_ID	CHAR(1)		
MMC_TRAN_ID	VARCHAR(20)		MMC Transaction ID
MMC_TRAN_NO	INT		MMC Transaction No.
MMC_TRAN_DATE	DATETIME		MMC Transaction Date
TOTAL_TRAN_AMT	MONEY		Total Transaction Amount
TOT_LFC_CHARGED	MONEY		Total Late Payment Fees Charged to Date against this Loan

Fig. 70

Smarte Credit Late Fee Log
Table Name : MMC_SMARTE_CREDIT_LF_LOG

MMC_ACC_ID	VARCHAR(20)	NN	MMC Account ID (Smarte Credit Account Only)
MMC_ACC_LOAN_ID	VARCHAR(23)	NN	Concatenation of Smarte Credit Account ID and Next Loan Number (Padded with zeros) of activation no (000-999). This specifically refers to the Individual LOAN to which the Late Fee was attached.
LF_APP_DATE	DATETIME		System Date where Late Fee Applied
LF_AMOUNT	MONEY		Amount of Late Fee Applied
LFC_CARRYOVER	MONEY		This is the amount remaining for the Buyer to Pay during this specific pay period at the time the Late Fee was applied.

Fig. 71

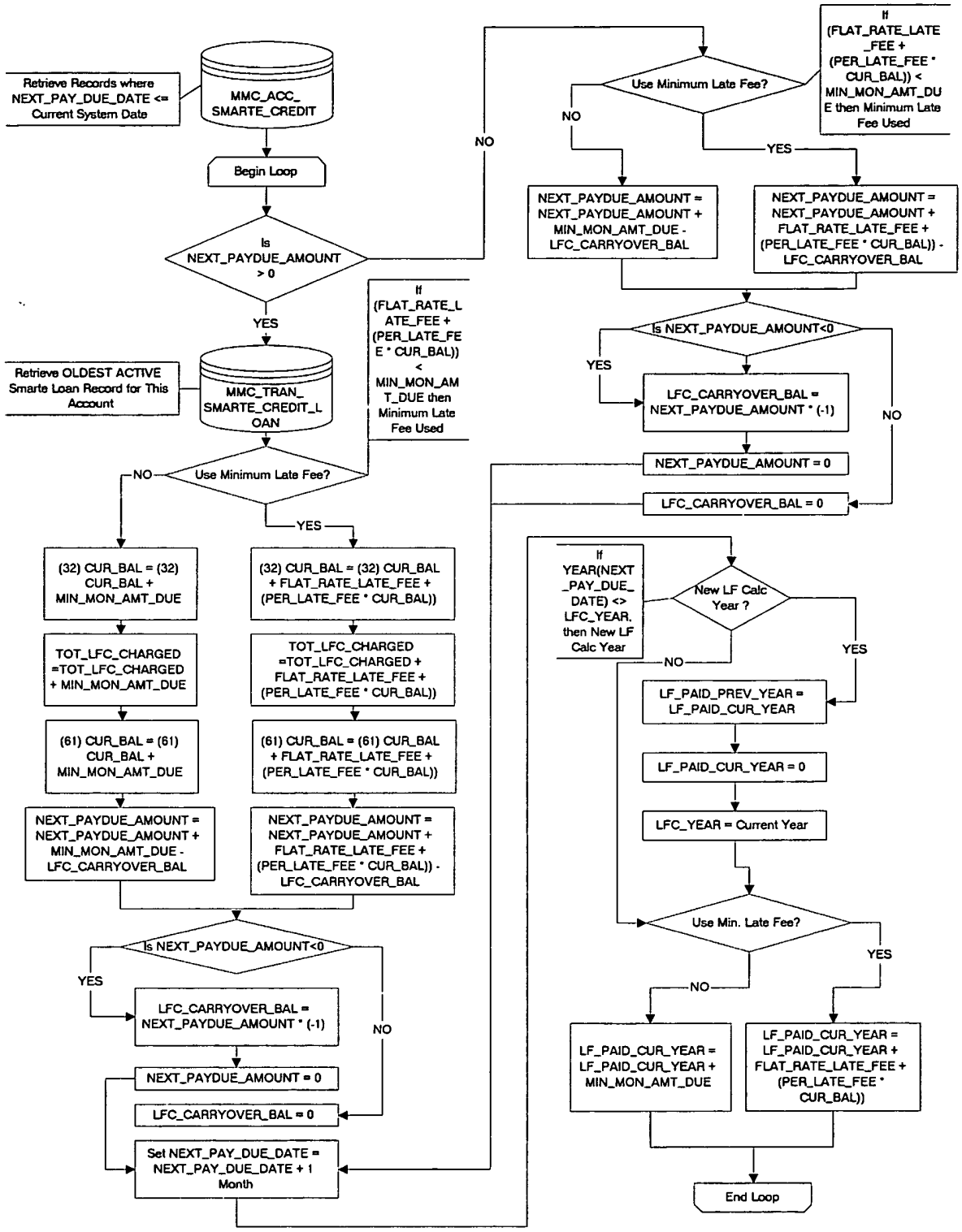
Retrieve Records where NEXT_PAY_DUE_DATE <= Current System Date
MMC_ACC_ SMARTE_CREDIT
Begin Loop
Is NEXT_PAYDUE_AMOUNT > 0
NO
YES
Retrieve OLDEST ACTIVE Smarte Loan Record for This Account
MMC_TRAN_ SMARTE_CREDIT_L OAN
Use Minimum Late Fee?
NO
YES
If (FLAT_RATE_L ATE_FEE + (PER_LATE_FE E * CUR_BAL)) < MIN_MON_AM T_DUE then Minimum Late Fee Used
(32) CUR_BAL = (32) CUR_BAL + MIN_MON_AMT_DUE
TOT_LFC_CHARGED =TOT_LFC_CHARGED + MIN_MON_AMT_DUE
(61) CUR_BAL = (61) CUR_BAL + MIN_MON_AMT_DUE
NEXT_PAYDUE_AMOUNT = NEXT_PAYDUE_AMOUNT + MIN_MON_AMT_DUE - LFC_CARRYOVER_BAL
(32) CUR_BAL = (32) CUR_BAL + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL))
TOT_LFC_CHARGED =TOT_LFC_CHARGED + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL))
(61) CUR_BAL = (61) CUR_BAL + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL))
NEXT_PAYDUE_AMOUNT = NEXT_PAYDUE_AMOUNT + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL)) - LFC_CARRYOVER_BAL
Is NEXT_PAYDUE_AMOUNT<0
YES
NO
LFC_CARRYOVER_BAL = NEXT_PAYDUE_AMOUNT * (-1)
NEXT_PAYDUE_AMOUNT = 0
LFC_CARRYOVER_BAL = 0
Set NEXT_PAY_DUE_DATE = NEXT_PAY_DUE_DATE + 1 Month
Use Minimum Late Fee?
NO
YES
If (FLAT_RATE_LATE _FEE + (PER_LATE_FEE * CUR_BAL)) < MIN_MON_AMT_DU E then Minimum Late Fee Used
NEXT_PAYDUE_AMOUNT = NEXT_PAYDUE_AMOUNT + MIN_MON_AMT_DUE - LFC_CARRYOVER_BAL
NEXT_PAYDUE_AMOUNT = NEXT_PAYDUE_AMOUNT + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL)) - LFC_CARRYOVER_BAL
Is NEXT_PAYDUE_AMOUNT<0
YES
NO
LFC_CARRYOVER_BAL = NEXT_PAYDUE_AMOUNT * (-1)
NEXT_PAYDUE_AMOUNT = 0
LFC_CARRYOVER_BAL = 0
If YEAR(NEXT _PAY_DUE_ DATE) <> LFC_YEAR, then New LF Calc Year
New LF Calc Year ?
NO
YES
LF_PAID_PREV_YEAR = LF_PAID_CUR_YEAR
LF_PAID_CUR_YEAR = 0
LFC_YEAR = Current Year
Use Min. Late Fee?
NO
YES
LF_PAID_CUR_YEAR = LF_PAID_CUR_YEAR + MIN_MON_AMT_DUE
LF_PAID_CUR_YEAR = LF_PAID_CUR_YEAR + FLAT_RATE_LATE_FEE + (PER_LATE_FEE * CUR_BAL))
End Loop

Fig. 72

Table: Batch Payment Due

BCN	VARCHAR(20)	NN	Batch Control Number
BATCH_ENTITY	VARCHAR(20)		MMC ID of Entity to make Payment To
PAY_ACC_TO	VARCHAR(20)		MMC ID of Account to make Payment To
PAY_ACC_FROM	VARCHAR(20)		MMC ID of Account to take Payment From
ORG_PAY	MONEY		Amount ($) of Payment Due (Original as Calculated from initial Batch Process)
ACT_PAY	MONEY		Actual Amount ($) of Payment Due (as Modified from Original Due to Payments)
PAY_DUE_DATE	DATETIME		Date Payment Due
PAY_DATE	DATETIME		Date Payment Made
PAY_BCN	VARCHAR(20)		Batch Control Number of Payment Batch
PAY_TCN	VARCHAR(15)		TCN of Payment ACH Trans
STATUS	VARCHAR(1)		Status Flag for Record to enable quicker / easier searches
COMMMENTS	VARCHAR(200)		Comments regarding Payment
PAY_SERIAL_NO	VARCHAR(20)		System Assigned Serial Number to the Outstanding PAYMENT

Fig. 73

Table: Batch Payment

PAY_BCN	VARCHAR(20)	NN	Batch Control Number
BATCH_ENTITY	VARCHAR(20)		MMC ID of Entity Payment Made To
PAY_ACC_TO	VARCHAR(20)		MMC ID of Account Payment Made To
PAY_ACC_FROM	VARCHAR(20)		MMC ID of Account Payment Taken From
PAY_AMOUNT	MONEY		Amount ($) of Payment Made
PAY_SERIAL_NO	VARCHAR(20)		System Assigned Serial Number to the Outstanding PAYMENT
PAY_DUE_DATE	DATETIME		Date Payment Due
PAY_DATE	DATETIME		Date Payment Made
MMC_TRAN_ID	VARCHAR(20)		Transaction (Master) ID Payment made under
MMC_TRAN_NO	VARCHAR(20)		Transaction (Sub) ID Payment made under

Fig. 74

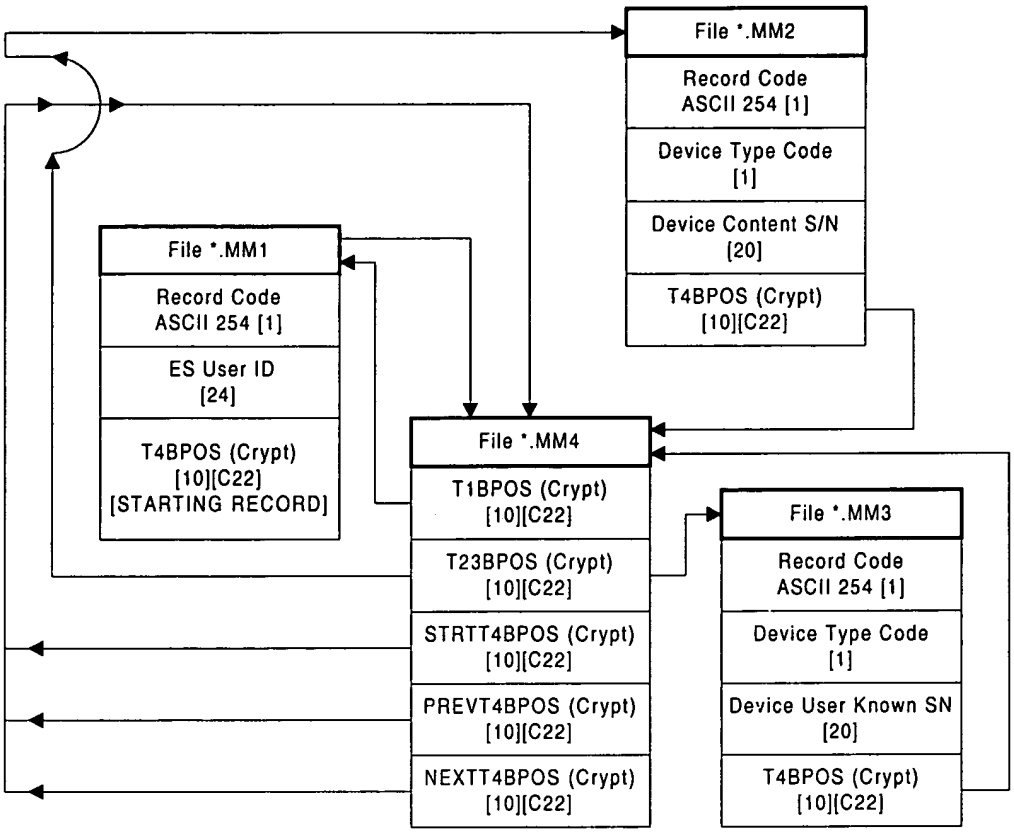

Fig. 75

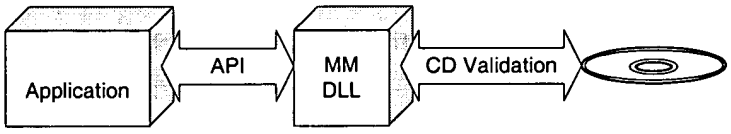

Fig. 76

EP 2 204 760 A1

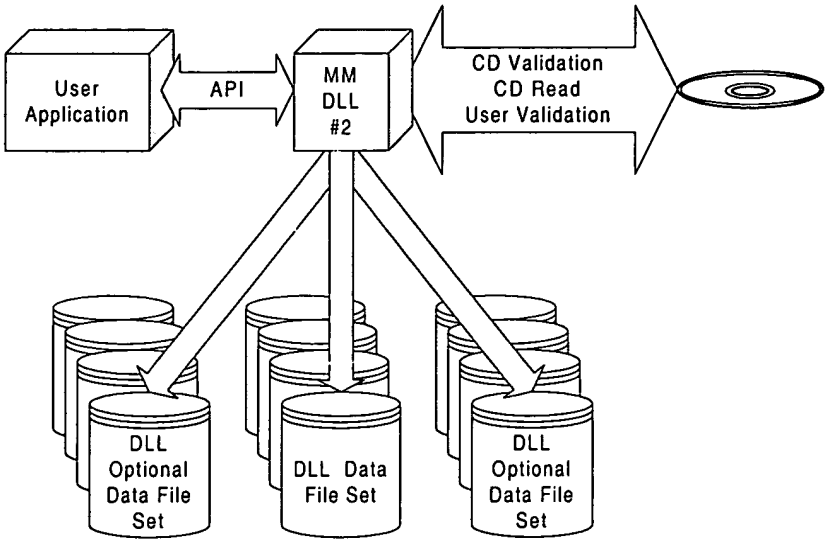
User Application
API
MM DLL #2
CD Validation
CD Read
User Validation
DLL Optional Data File Set
DLL Data File Set
DLL Optional Data File Set

Fig. 77

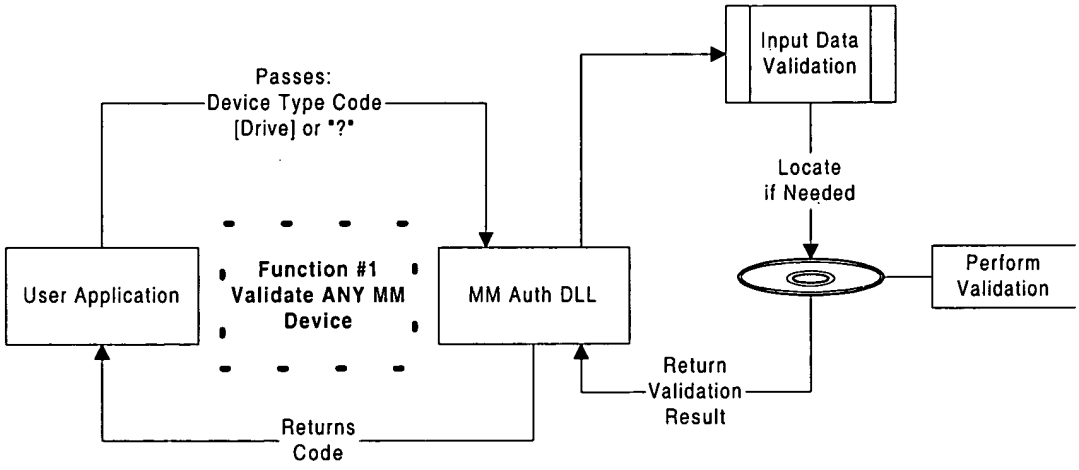
Input Data Validation
Passes:
Device Type Code
[Drive] or "?"
Locate if Needed
User Application
Function #1
Validate ANY MM Device
MM Auth DLL
Perform Validation
Return Validation Result
Returns Code

Fig. 78

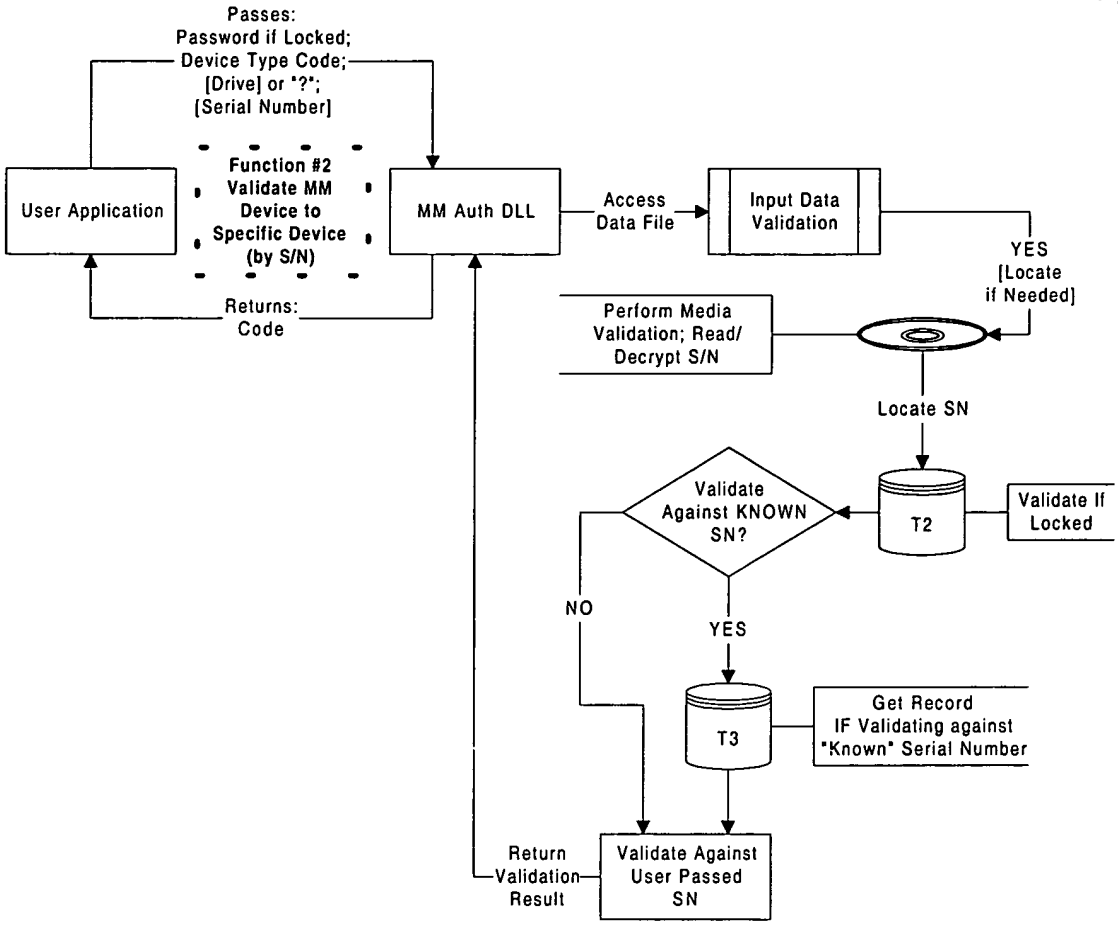
Passes:
Password if Locked;
Device Type Code;
[Drive] or "?";
[Serial Number]
User Application
Function #2
Validate MM
Device to
Specific Device
(by S/N)
MM Auth DLL
Access
Data File
Input Data
Validation
YES
[Locate
if Needed]
Returns:
Code
Perform Media
Validation; Read/
Decrypt S/N
Locate SN
Validate
Against KNOWN
SN?
T2
Validate If
Locked
NO
YES
T3
Get Record
IF Validating against
"Known" Serial Number
Return
Validation
Result
Validate Against
User Passed
SN

Fig. 79

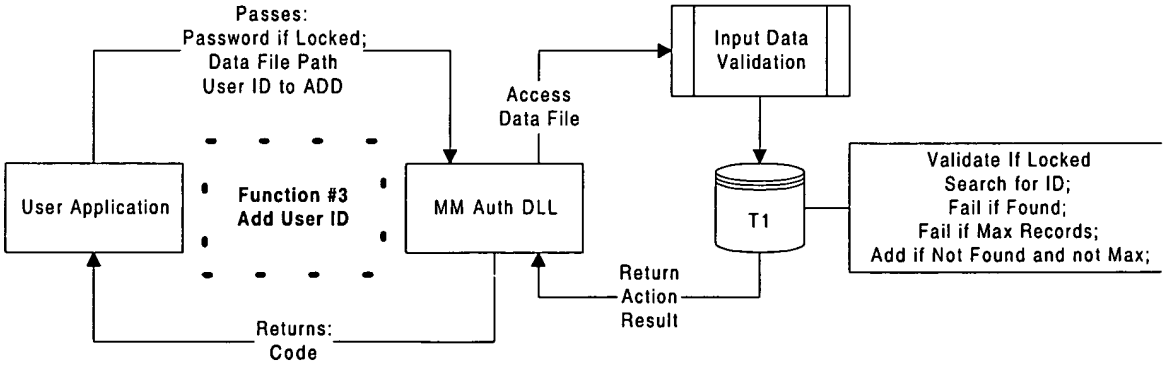
Passes:
Password if Locked;
Data File Path
User ID to ADD
Input Data
Validation
Access
Data File
User Application
Function #3
Add User ID
MM Auth DLL
T1
Validate If Locked
Search for ID;
Fail if Found;
Fail if Max Records;
Add if Not Found and not Max;
Return
Action
Result
Returns:
Code

Fig. 80

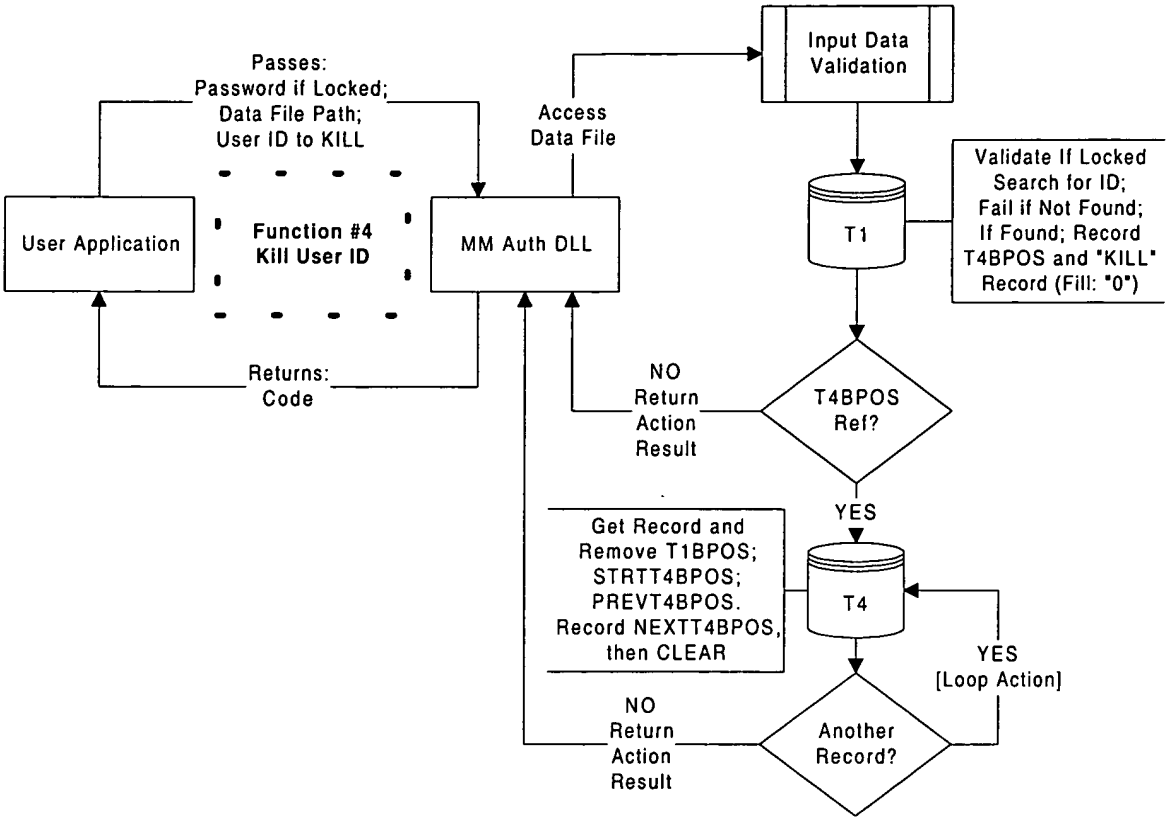

Fig. 81

0950504 "0202"

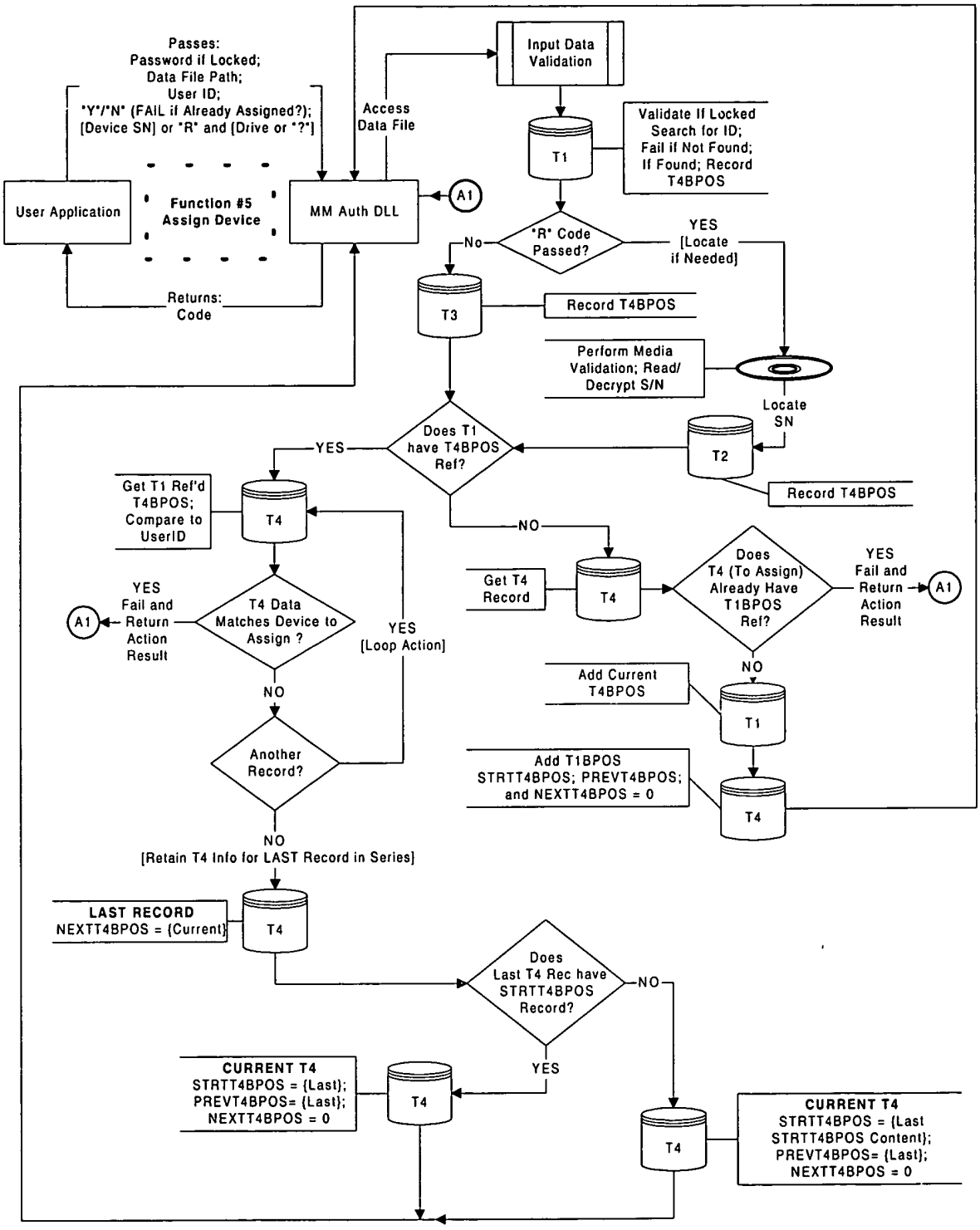
Passes:
Password if Locked;
Data File Path;
User ID;
"Y"/"N" (FAIL if Already Assigned?);
[Device SN] or "R" and [Drive or "?"]
Access Data File
Input Data Validation
T1
Validate If Locked Search for ID; Fail if Not Found; If Found; Record T4BPOS
User Application
Function #5 Assign Device
MM Auth DLL
A1
"R" Code Passed?
No
YES [Locate if Needed]
Returns: Code
T3
Record T4BPOS
Perform Media Validation; Read/ Decrypt S/N
Locate SN
T2
Record T4BPOS
Does T1 have T4BPOS Ref?
YES
NO
Get T1 Ref'd T4BPOS; Compare to UserID
T4
YES Fail and Return Action Result
T4 Data Matches Device to Assign ?
YES [Loop Action]
NO
Another Record?
NO
[Retain T4 Info for LAST Record in Series]
Get T4 Record
Does T4 (To Assign) Already Have T1BPOS Ref?
YES Fail and Return Action Result
NO
Add Current T4BPOS
Add T1BPOS STRTT4BPOS; PREVT4BPOS; and NEXTT4BPOS = 0
LAST RECORD NEXTT4BPOS = {Current}
Does Last T4 Rec have STRTT4BPOS Record?
NO
YES
CURRENT T4 STRTT4BPOS = {Last}; PREVT4BPOS= {Last}; NEXTT4BPOS = 0
CURRENT T4 STRTT4BPOS = {Last STRTT4BPOS Content}; PREVT4BPOS= {Last}; NEXTT4BPOS = 0

Fig. 82

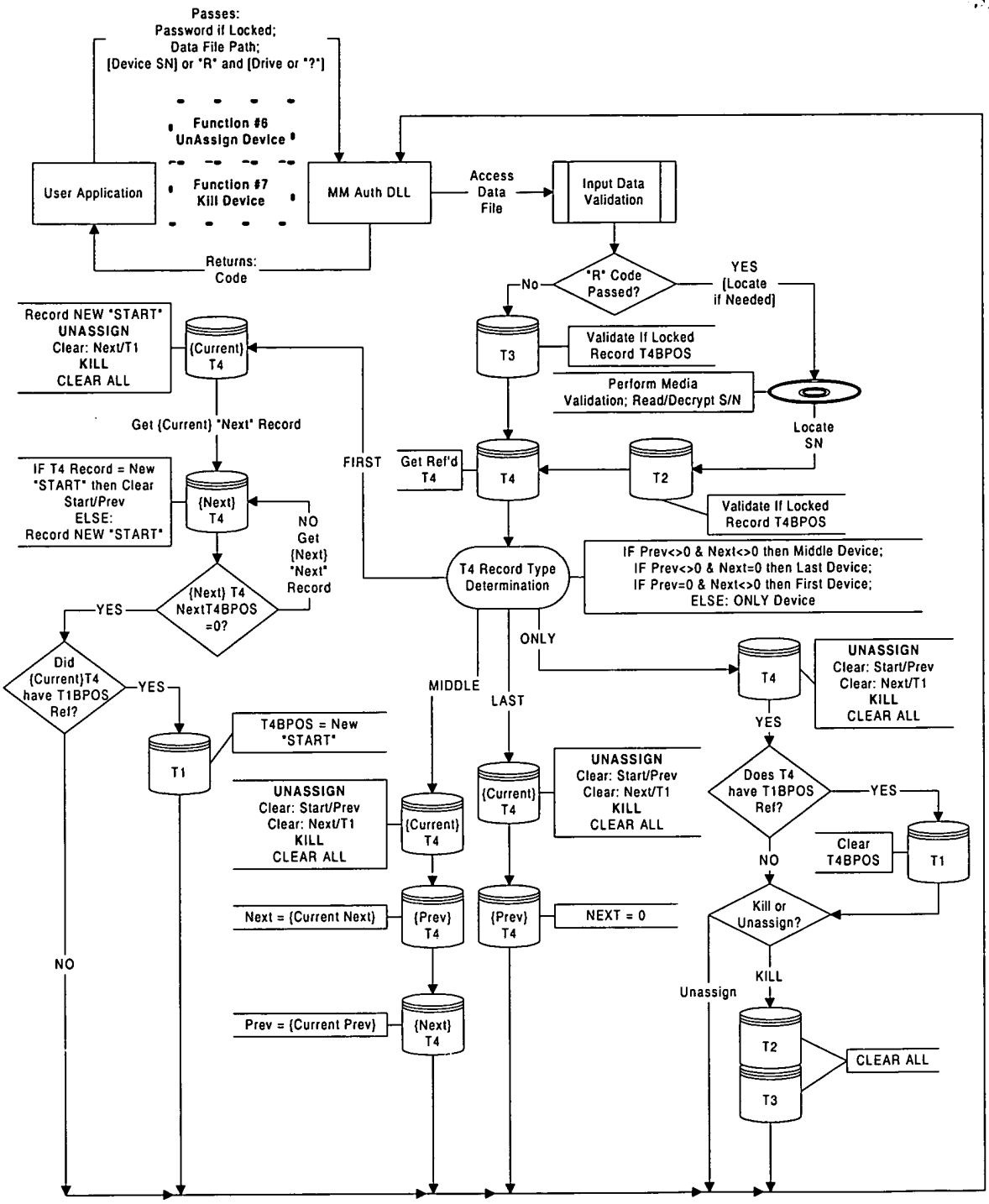
Passes:
Password if Locked;
Data File Path;
[Device SN] or "R" and [Drive or "?"]
Function #6
UnAssign Device
Function #7
Kill Device
User Application
MM Auth DLL
Access
Data
File
Input Data
Validation
Returns:
Code
"R" Code
Passed?
No
YES
[Locate
if Needed]
Record NEW "START"
UNASSIGN
Clear: Next/T1
KILL
CLEAR ALL
(Current)
T4
T3
Validate If Locked
Record T4BPOS
Perform Media
Validation; Read/Decrypt S/N
Locate
SN
Get (Current) "Next" Record
IF T4 Record = New
"START" then Clear
Start/Prev
ELSE:
Record NEW "START"
(Next)
T4
FIRST
Get Ref'd
T4
T4
T2
Validate If Locked
Record T4BPOS
NO
Get
(Next)
"Next"
Record
T4 Record Type
Determination
IF Prev<>0 & Next<>0 then Middle Device;
IF Prev<>0 & Next=0 then Last Device;
IF Prev=0 & Next<>0 then First Device;
ELSE: ONLY Device
(Next) T4
NextT4BPOS
=0?
YES
ONLY
Did
(Current)T4
have T1BPOS
Ref?
YES
MIDDLE
LAST
T4
UNASSIGN
Clear: Start/Prev
Clear: Next/T1
KILL
CLEAR ALL
YES
T1
T4BPOS = New
"START"
UNASSIGN
Clear: Start/Prev
Clear: Next/T1
KILL
CLEAR ALL
(Current)
T4
(Current)
T4
UNASSIGN
Clear: Start/Prev
Clear: Next/T1
KILL
CLEAR ALL
Does T4
have T1BPOS
Ref?
YES
Clear
T4BPOS
T1
NO
Next = (Current Next)
(Prev)
T4
(Prev)
T4
NEXT = 0
Kill or
Unassign?
NO
KILL
Unassign
Prev = (Current Prev)
(Next)
T4
T2
T3
CLEAR ALL

Fig. 83

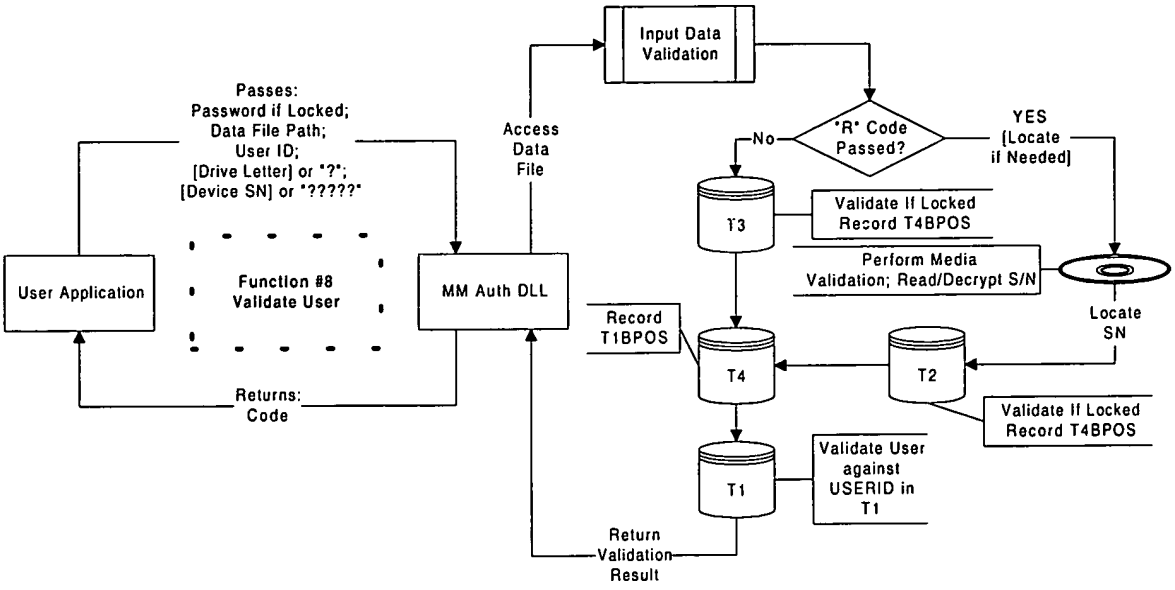
Input Data Validation
Passes:
Password if Locked;
Data File Path;
User ID;
[Drive Letter] or "?";
[Device SN] or "?????"
Access Data File
No
"R" Code Passed?
YES [Locate if Needed]
T3
Validate If Locked Record T4BPOS
Perform Media Validation; Read/Decrypt S/N
Locate SN
User Application
Function #8 Validate User
MM Auth DLL
Record T1BPOS
T4
T2
Validate If Locked Record T4BPOS
T1
Validate User against USERID in T1
Returns: Code
Return Validation Result

Fig. 84

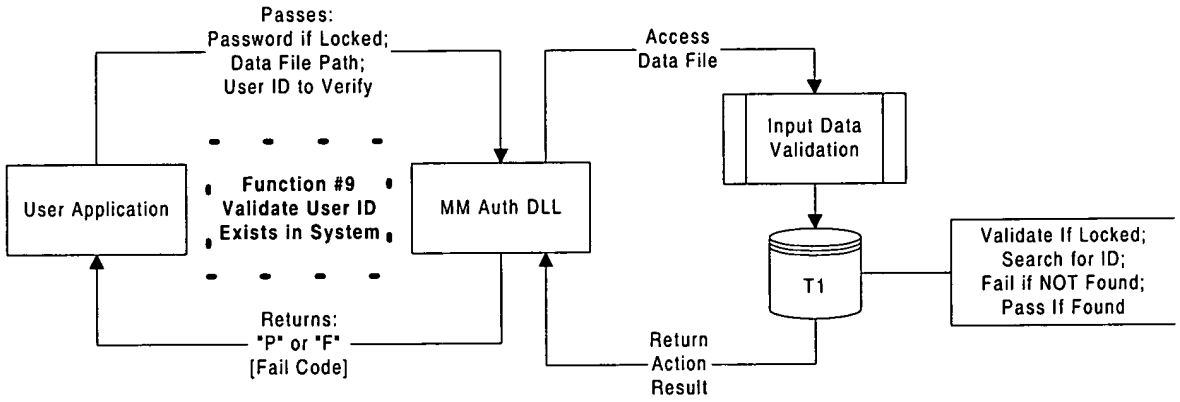
Passes:
Password if Locked;
Data File Path;
User ID to Verify
Access Data File
Input Data Validation
User Application
Function #9 Validate User ID Exists in System
MM Auth DLL
T1
Validate If Locked; Search for ID; Fail if NOT Found; Pass If Found
Returns: "P" or "F" [Fail Code]
Return Action Result

Fig. 85

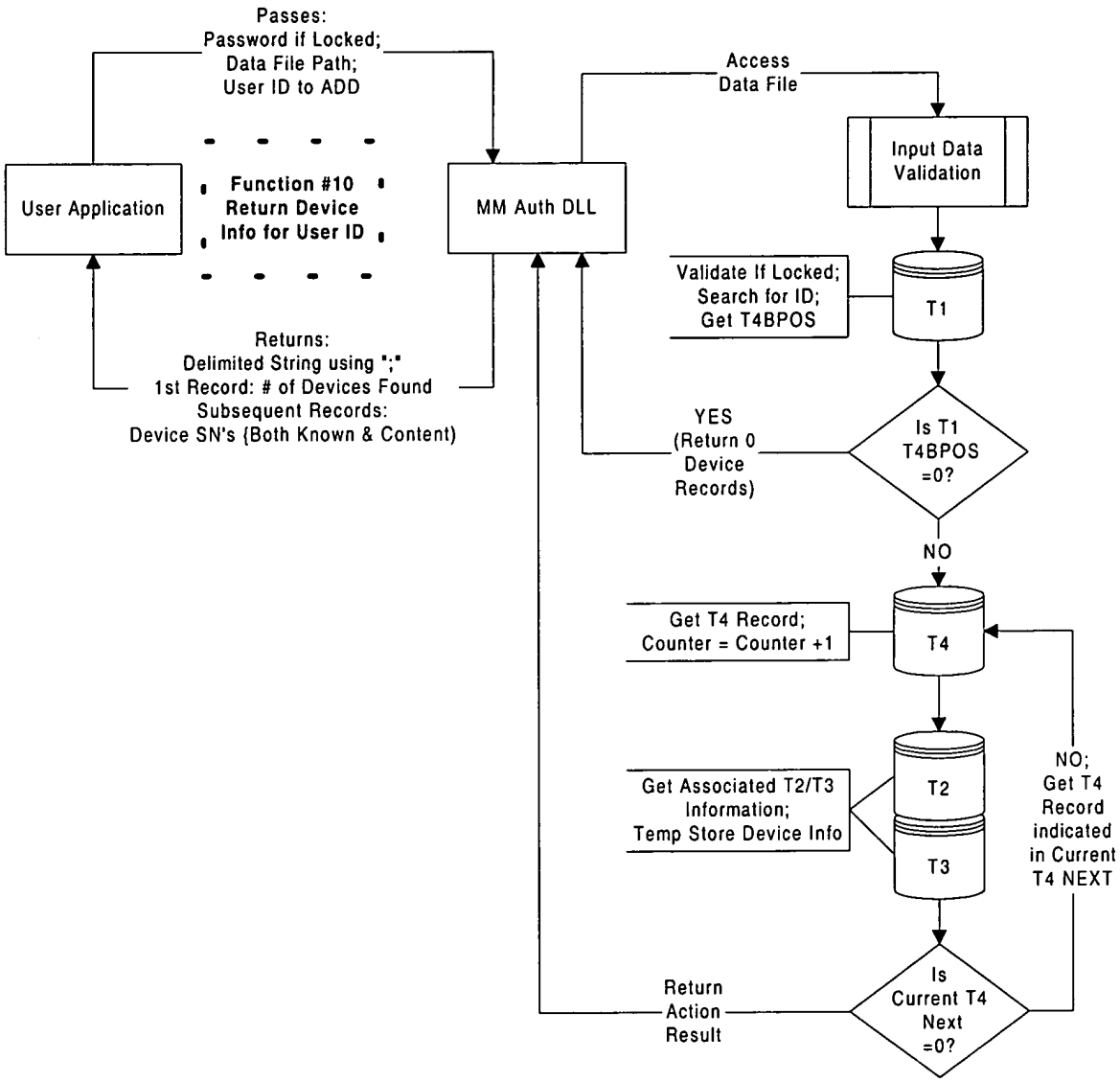
Passes:
Password if Locked;
Data File Path;
User ID to ADD
User Application
Function #10
Return Device
Info for User ID
Returns:
Delimited String using ";"
1st Record: # of Devices Found
Subsequent Records:
Device SN's (Both Known & Content)
MM Auth DLL
Access
Data File
Input Data
Validation
Validate If Locked;
Search for ID;
Get T4BPOS
T1
YES
(Return 0
Device
Records)
Is T1
T4BPOS
=0?
NO
Get T4 Record;
Counter = Counter +1
T4
Get Associated T2/T3
Information;
Temp Store Device Info
T2
T3
NO;
Get T4
Record
indicated
in Current
T4 NEXT
Return
Action
Result
Is
Current T4
Next
=0?

Fig. 86

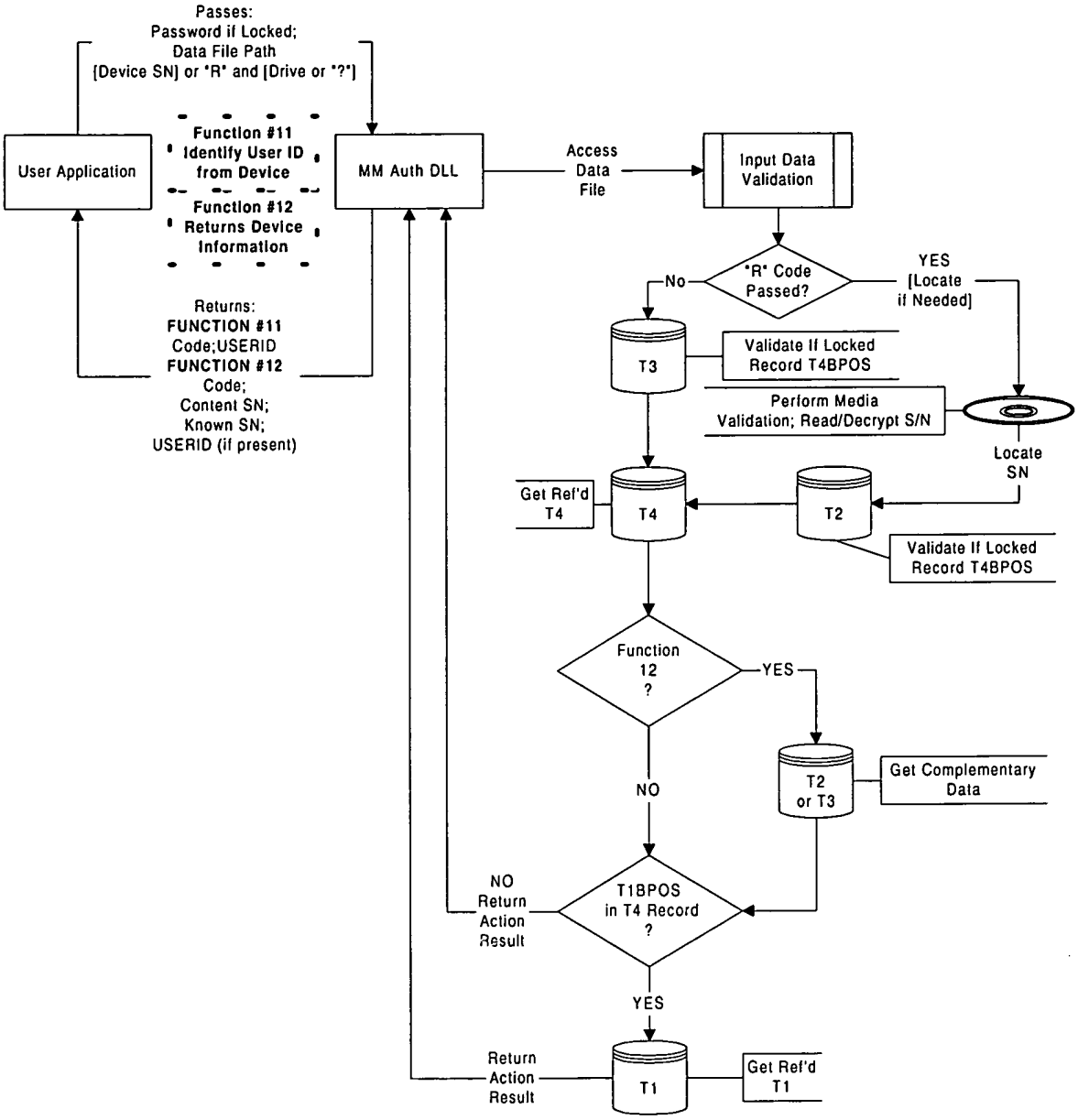
Passes:
Password if Locked;
Data File Path
[Device SN] or "R" and [Drive or "?"]
User Application
Function #11
Identify User ID
from Device
Function #12
Returns Device
Information
MM Auth DLL
Access
Data
File
Input Data
Validation
"R" Code
Passed?
No
YES
[Locate
if Needed]
T3
Validate If Locked
Record T4BPOS
Perform Media
Validation; Read/Decrypt S/N
Locate
SN
Get Ref'd
T4
T4
T2
Validate If Locked
Record T4BPOS
Returns:
FUNCTION #11
Code;USERID
FUNCTION #12
Code;
Content SN;
Known SN;
USERID (if present)
Function
12
?
YES
NO
T2
or T3
Get Complementary
Data
NO
Return
Action
Result
T1BPOS
in T4 Record
?
YES
Return
Action
Result
T1
Get Ref'd
T1

Fig. 87

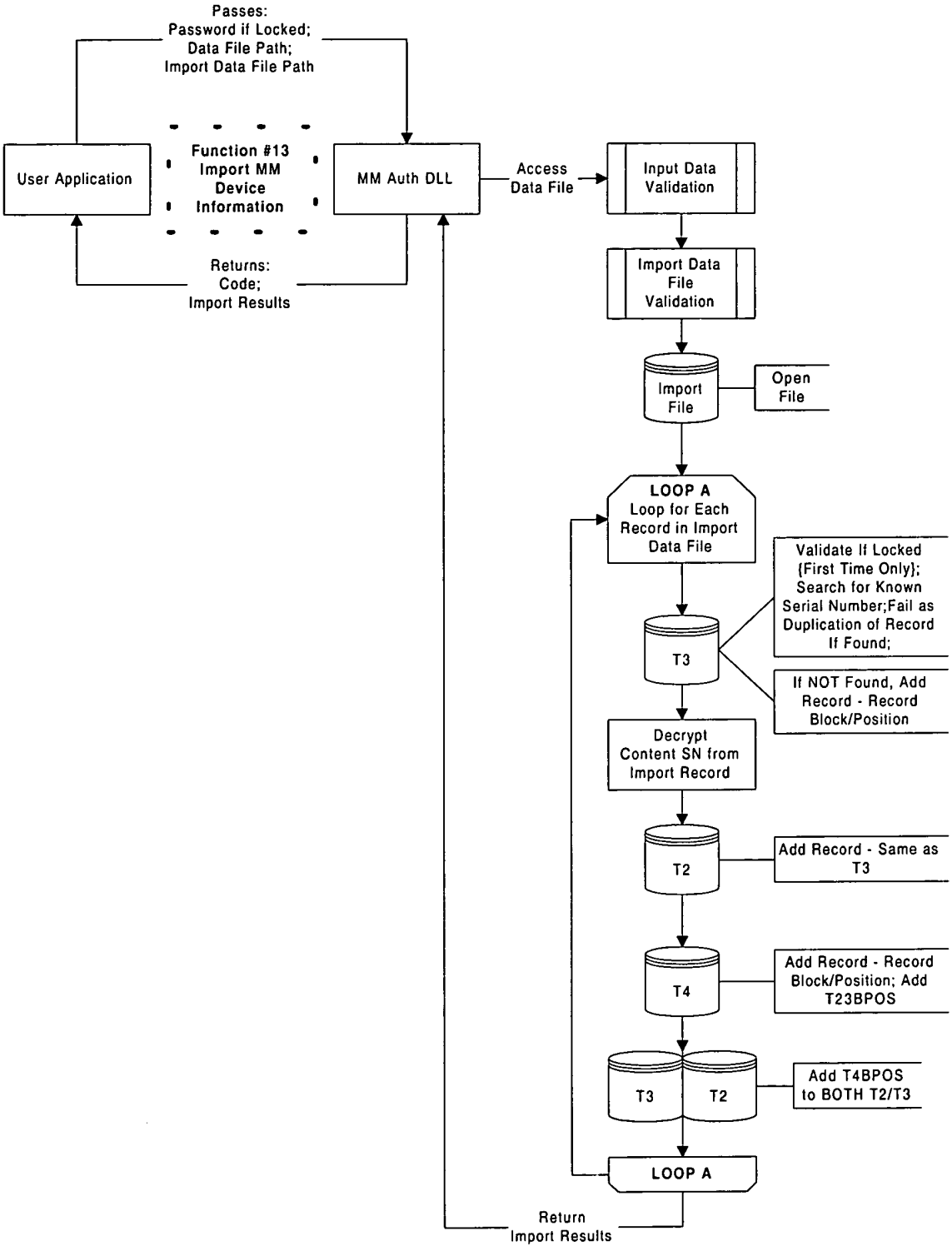
Passes:
Password if Locked;
Data File Path;
Import Data File Path
User Application
Function #13
Import MM
Device
Information
MM Auth DLL
Access
Data File
Input Data
Validation
Import Data
File
Validation
Import
File
Open
File
LOOP A
Loop for Each
Record in Import
Data File
Validate If Locked
(First Time Only);
Search for Known
Serial Number;Fail as
Duplication of Record
If Found;
T3
If NOT Found, Add
Record - Record
Block/Position
Decrypt
Content SN from
Import Record
T2
Add Record - Same as
T3
T4
Add Record - Record
Block/Position; Add
T23BPOS
T3
T2
Add T4BPOS
to BOTH T2/T3
LOOP A
Return
Import Results
Returns:
Code;
Import Results

Fig. 88

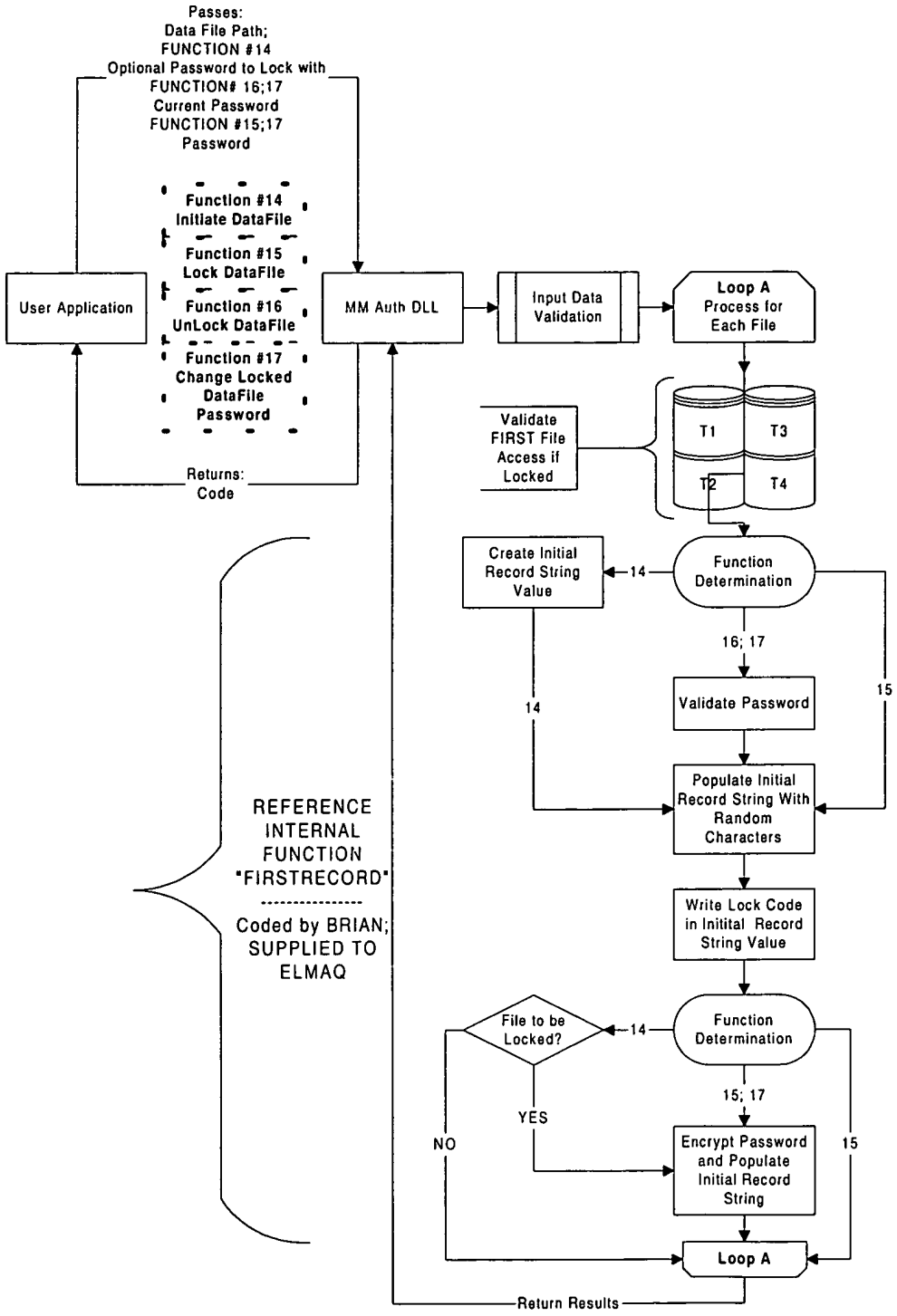
Passes:
Data File Path;
FUNCTION #14
Optional Password to Lock with
FUNCTION# 16;17
Current Password
FUNCTION #15;17
Password
Function #14
Initiate DataFile
Function #15
Lock DataFile
Function #16
UnLock DataFile
Function #17
Change Locked
DataFile
Password
User Application
MM Auth DLL
Input Data
Validation
Loop A
Process for
Each File
Returns:
Code
Validate
FIRST File
Access if
Locked
T1
T3
T2
T4
Create Initial
Record String
Value
14
Function
Determination
16; 17
14
Validate Password
15
Populate Initial
Record String With
Random
Characters
REFERENCE
INTERNAL
FUNCTION
"FIRSTRECORD"
Coded by BRIAN;
SUPPLIED TO
ELMAQ
Write Lock Code
in Initital Record
String Value
File to be
Locked?
14
Function
Determination
15; 17
YES
NO
Encrypt Password
and Populate
Initial Record
String
15
Loop A
Return Results

Fig. 89

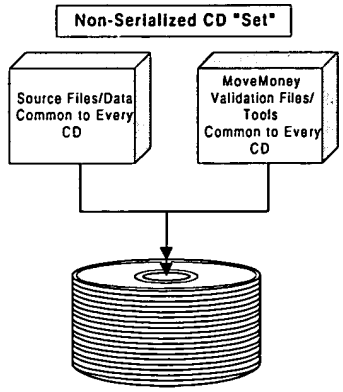
Non-Serialized CD "Set"
Source Files/Data Common to Every CD
MoveMoney Validation Files/ Tools Common to Every CD

Fig. 90

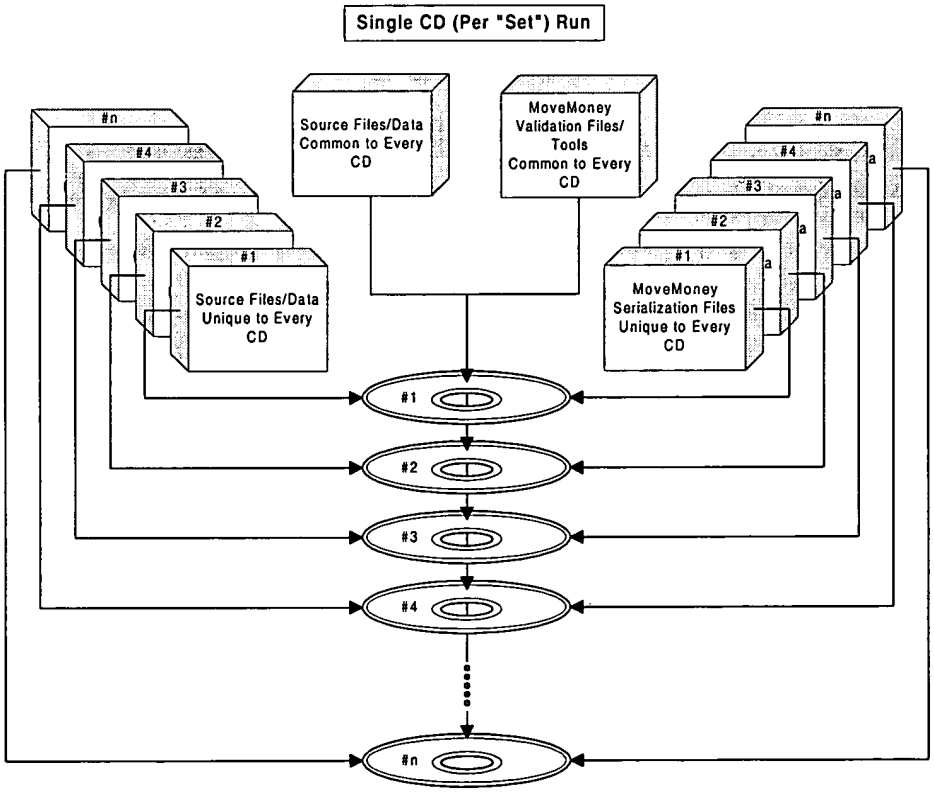
Single CD (Per "Set") Run
Source Files/Data Common to Every CD
MoveMoney Validation Files/ Tools Common to Every CD
Source Files/Data Unique to Every CD
MoveMoney Serialization Files Unique to Every CD
#1
#2
#3
#4
#n

Fig. 91

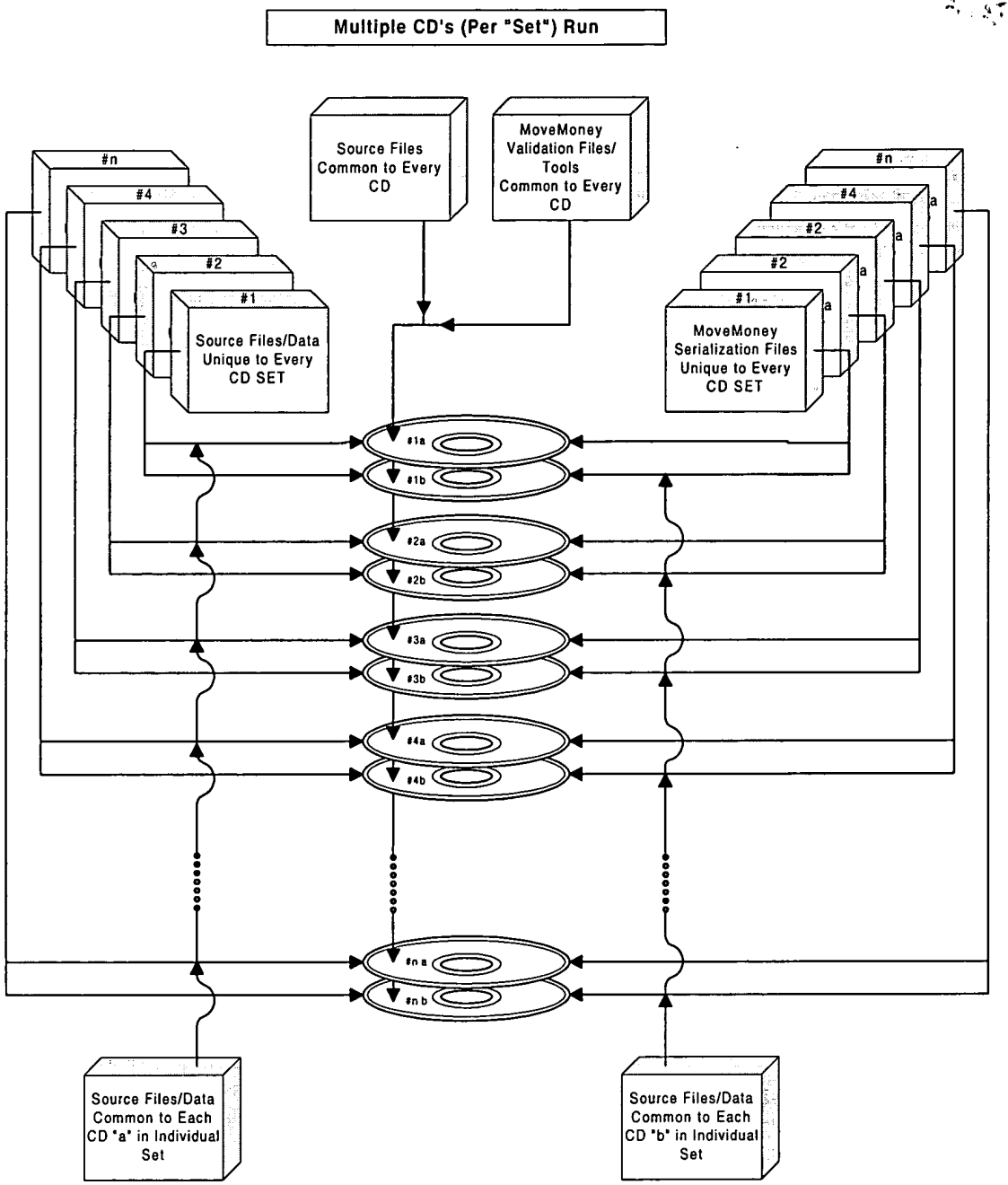

Fig. 92

PTO/SB/21 (09-04)
Approved for use through 07/31/2006. OMB 0651-0031

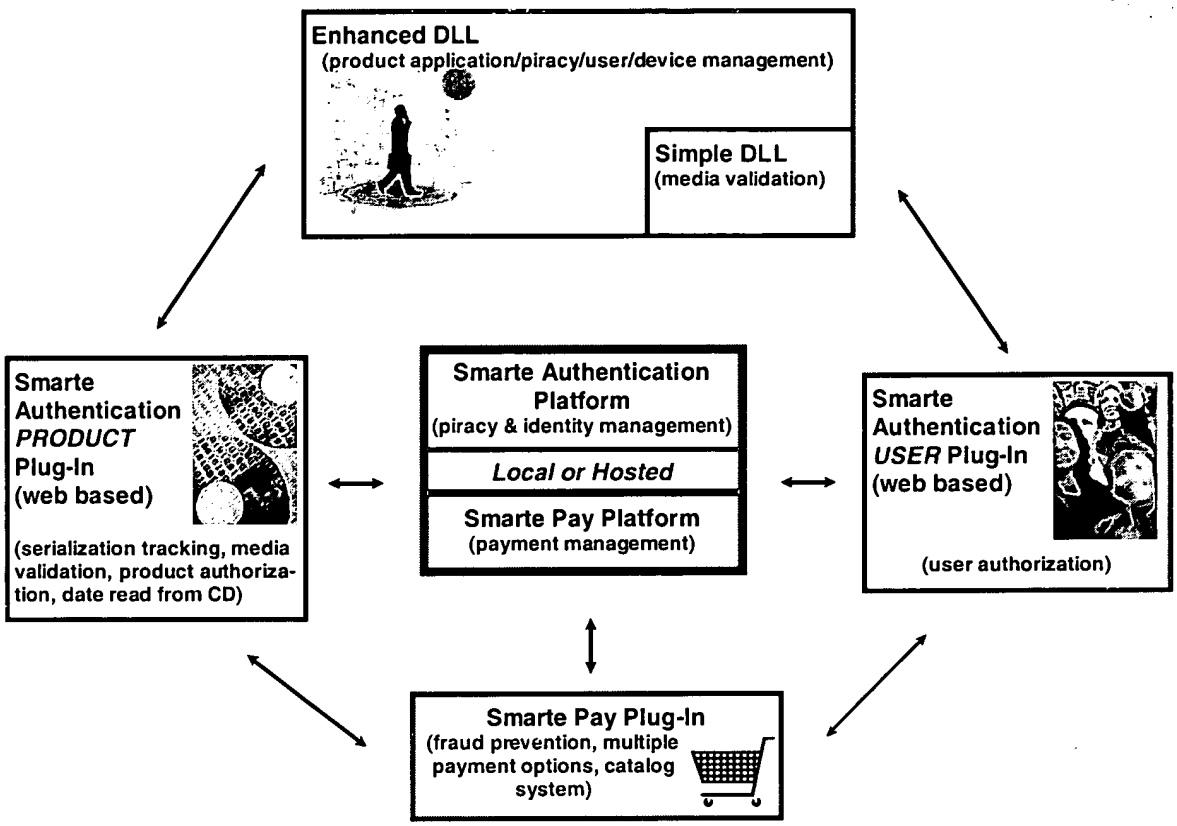
Enhanced DLL
(product application/piracy/user/device management)
Simple DLL
(media validation)
Smarte Authentication PRODUCT Plug-In (web based)
(serialization tracking, media validation, product authorization, date read from CD)
Smarte Authentication Platform
(piracy & identity management)
Local or Hosted
Smarte Pay Platform
(payment management)
Smarte Authentication USER Plug-In (web based)
(user authorization)
Smarte Pay Plug-In
(fraud prevention, multiple payment options, catalog system)

Fig. 93